

a-d, i, l, q-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-k (independently selected) = 0 or 1.

M = 0 to 20.

$$n, v-v = 0; z = 0 \text{ or } 1;$$

R = polymer, toxin, radioisotope-complex, drug, mannose, oligo-mannose.

R' = H, glycosyl residue, modifying group, glycoconjugate.

FIG. 49A

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CHO, BHK, 293 cells, Vero expressed Herceptin.  
a, c, i (independently selected) = 0 or 1;  
e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
q, z = 1.

- ↓  
1. galactosyltransferase, UDP-Gal  
2. CMP-SA-toxin, ST3Gal3

a, c, i, j, l (independently selected) = 0 or 1;  
e, g, r, t = 1; R = toxin;  
f, h, k, m, n, s, u-y = 0; q, z = 1;  
v-y (independently selected) = 51,  
when j, l (independently selected) is 1.

FIG. 49B

CHO, BHK, 293 cells, Vero or fungal expressed Herceptin.  
a, c, i (independently selected) = 0 or 1;  
e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
q, z = 1.

- ↓  
1. galactosyltransferase,  
UPD-Gal-Toxin

a, c, i (independently selected) = 0 or 1;  
e, g, r, t = 1; f, h, j-m, n, s, u-y = 0;  
q, z = 1; v-y (independently selected) = 1,  
when a, c (independently selected) is 1;  
R = toxin.

FIG. 49C

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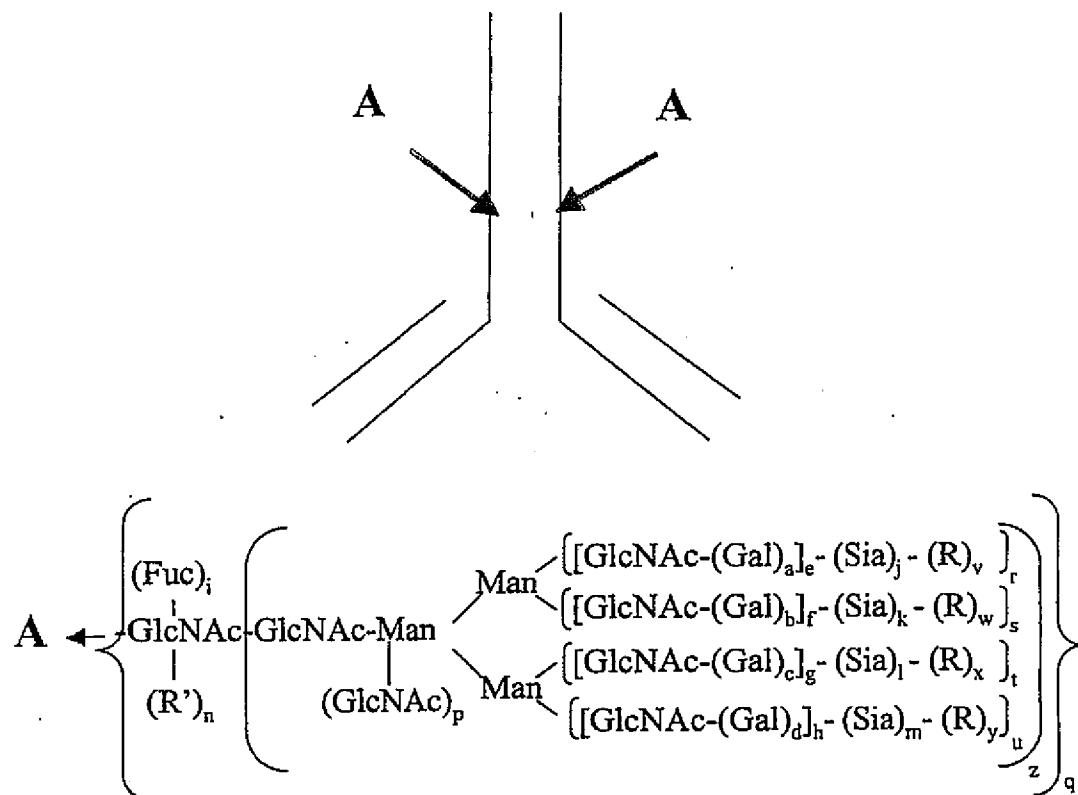
Fungi expressed Herceptin.  
e, g, i, r, t (independently selected) = 0 or 1;  
a-d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓  
1. Endo-H  
2. Galactosyltransferase, UDP-Gal  
3.. CMP-SA-radioisotope complex, ST3Gal3

a-m, r-z= 0; q, n = 1;  
R' = -Gal-Sia-radioisotope complex.

FIG. 49D

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a-d, i, p-u, (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 or 1.

n, v-y = 0; z = 0 or 1;

R = polymer, toxin, radioisotope-complex, drug, mannose, oligo-mannose.

R' = H, glycosyl residue, modifying group, glycoconjugate.

FIG. 50A

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CHO, BHK, 293 cells, Vero expressed Synagis.  
 a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1;  
 b, d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓  
 1. galactosyltransferase, UDP-Gal  
 2. CMP-SA-PEG, ST3Gal3

a, c, i, j, w, (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, k, m, n, s, u-y = 0;  
 q, z = 1; v-y (independently selected) = 1,  
 when j, l (independently selected) is 1;  
 R = PEG.

FIG. 50B

CHO, BHK, 293 cells, Vero or fungal expressed  
 Synagis.  
 a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
 q, z = 1.

- ↓  
 1. galactosyltransferase,  
 UDP-Gal-PEG

a, c, i, w (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, j-m, n, s, u-y = 0;  
 q, z = 1; v-y (independently selected) = 1,  
 when a, c (independently selected) is 1;  
 R = PEG.

FIG. 50C

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Fungi expressed Synagis.

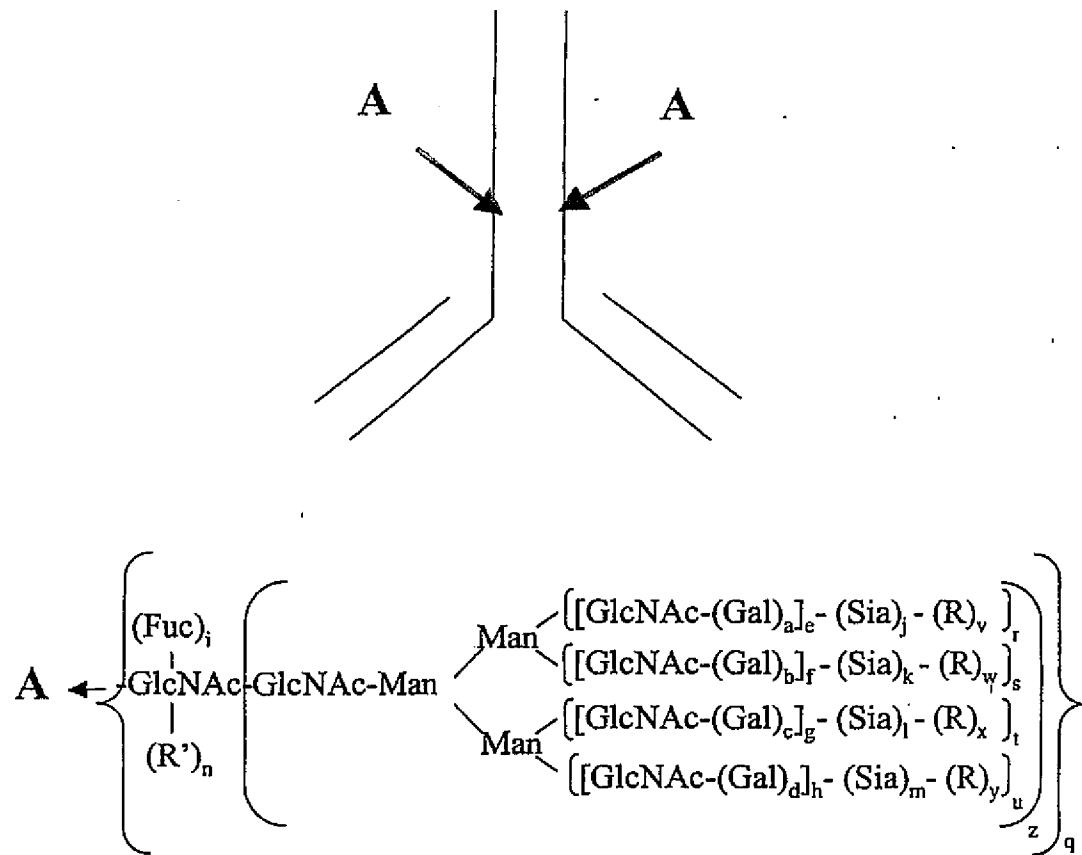
e, g, i, r, t (independently selected) = 0 or 1;  
a-d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓
1. Endo-H
  2. Galactosyltransferase, UDP-Gal
  3. CMP-SA-PEG, ST3Gal3

a-m, r-z= 0; q, n = 1; R' = -Gal-Sia-PEG.

FIG. 50D

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a-d, i, q-u, w (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 6.

j-m (independently selected) = 0 to 20.

n, v-y = 0; z = 0 or 1;

R = polymer, toxin, radioisotope-complex, drug, mannose, oligo-mannose.

R' = H, glycosyl residue, modifying group, glycoconjugate.

FIG. 51A

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CHO, BHK, 293 cells, Vero expressed Remicade.  
 a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
 q, z = 1.

- ↓  
 1. galactosyltransferase, UPD-Gal  
 2. CMP-SA-PEG, ST3Gal3

a, c, i, j, l (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, k, m, n, s, u-y = 0;  
 q, z = 1; v-y (independently selected) = 1,  
 when j, l (independently selected) is 1;  
 R = PEG.

**FIG. 51B**

CHO, BHK, 293 cells, Vero or fungal expressed Remicade.  
 a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
 q, z = 1.

- ↓  
 1. galactosyltransferase,  
 UPD-Gal-PEG

a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, j-m, n, s, u-y = 0;  
 q, z = 1; v-y (independently selected) = 1,  
 when a, c (independently selected) is 1;  
 R = PEG.

**FIG. 51C**

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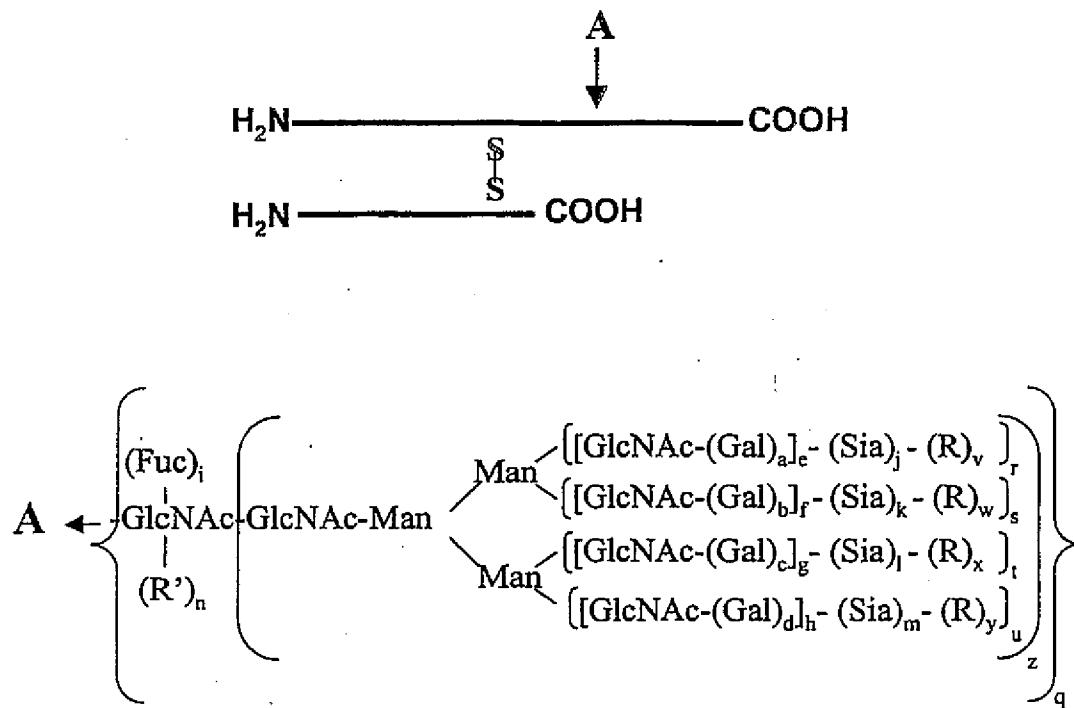
Fungi expressed Remicade.  
e, g, i, r, t (independently selected) = 0 or 1;  
a-d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓  
1. Endo-H  
2. Galactosyltransferase, UDP-Gal  
3.. CMP-SA-radioisotope complex, ST3Gal3

a-m, r-z= 0; q, n = 1;  
R' = -Gal-Sia-radioisotope complex.

FIG. 51D

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a-d, i, q-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 or 1.

n, v-y = 0; z = 0 or 1;

R = modifying group, mannose, oligo-mannose;

R' = H, glycosyl residue, modifying group, glycoconjugate.

**FIG. 52A**

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CHO, BHK, 293 cells, Vero expressed Reopro.  
a-m, r-u (independently selected) = 0 or 1;  
n = 0; v-y = 0; z = 1.

↓  
1. Sialidase  
2. CMP-SA-PEG, ST3Gal3

a-m, r-u (independently selected) = 0 or 1;  
v-y (independently selected) = 1,  
when j-m (independently selected) is 1;  
n = 0; R = PEG; z = 1.

## FIG. 52B

Insect cell expressed Reopro.  
a-h, j-n, s-y = 0; i, r (independently selected) = 0 or 1;  
z = 1.

↓  
1. GNT's 1&2, UDP-GlcNAc-PEG

a-d, f, h, j-n, s, u, w, y = 0;  
e, g, i, r, t, v, x (independently selected) = 0 or 1;  
v, x (independently selected) = 1,  
when e, g (independently selected) is 1;  
z = 1; R = PEG.

## FIG. 52C

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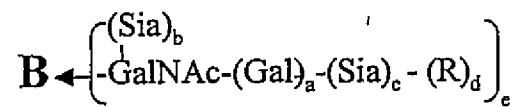
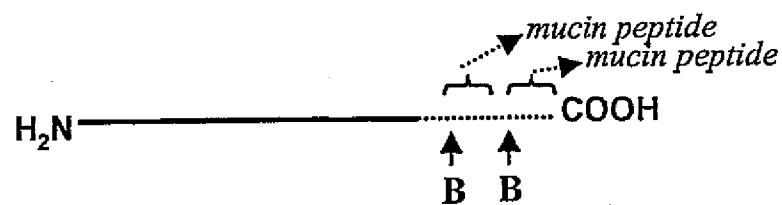
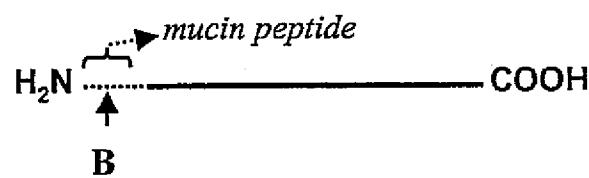
Yeast expressed Reopro.  
a-n = 0; r-y (independently selected) = 0 to 1;  
z = 1;  
R (branched or linear) = Man, oligomannose or  
polysaccharide.

- ↓  
1. Endo-H  
2. Galactosyltransferase, UDP-Gal-PEG

a-m, r-z= 0; n = 1; R' = -Gal-PEG.

FIG. 52D

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a-c, e (independently selected) = 0 or 1;  
d = 0; R = polymer

FIG. 52E

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CHO, BHK, 293 cells, Vero expressed  
Reopro-mucin fusion protein.  
a-c, e (independently selected) = 0 or 1; d = 0

- ↓  
1. Sialidase  
2. CMP-SA-PEG, ST3Gall

a-d, e (independently selected) = 0 or 1; R = PEG.

FIG. 52F

Insect cell expressed Reopro-mucin fusion protein.  
a, e (independently selected) = 0 or 1; b, c, d = 0.

- ↓  
1. Galactosyltransferase, UDP-Gal-PEG

a, d, e (independently selected) = 0 or 1;  
b, c = 0; R = PEG.

FIG. 52G

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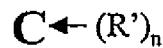
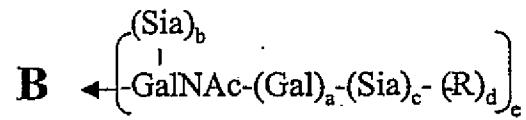
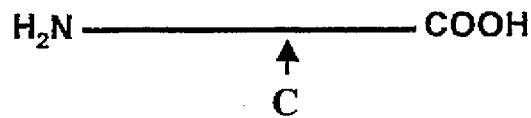
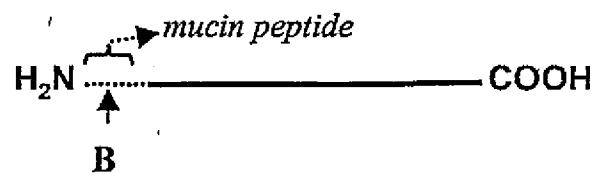
E. coli expressed Reopro-mucin fusion protein.  
a-e = 0.

- ↓  
1. GalNAc Transferase, UDP-GalNAc  
2. CMP-SA-PEG, sialyltransferase

c, d, e (independently selected) = 0 or 1;  
a, b = 0; R = PEG.

FIG. 52H

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a-c, e (independently selected) = 0 or 1;  
 d = 0; R = polymer, linker.

FIG. 52I

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E. coli expressed Reopro-mucin fusion protein.  
a-e, n = 0.

↓  
1. GalNAc Transferase,  
UDP-GalNAc-PEG

d, e (independently selected) = 0 or 1;  
a-c, n = 0; R = PEG.

## FIG. 52J

E. coli expressed Reopro-mucin fusion protein.  
a-e, n = 0.

↓  
1. GalNAc Transferase,  
UDP-GalNAc-linker-SA-CMP  
2. ST3Gal3, asialo-transferrin  
3. CMP-SA, ST3Gal3

d, e (independently selected) = 0 or 1;  
a-c, n = 0; R = linker-transferrin.

## FIG. 52K

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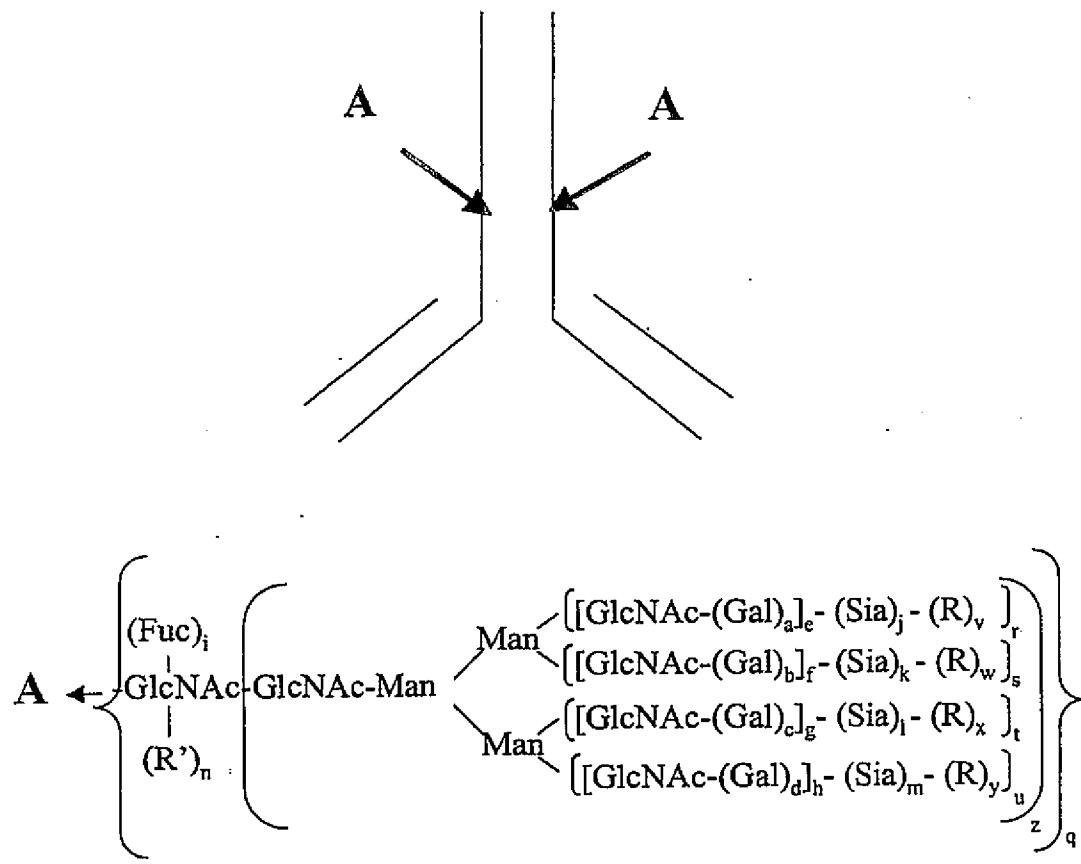
E. coli expressed Reopro(N)—no mucin peptide.  
a-e, n = 0.

- ↓
1. NHS-CO-linker-SA-CMP
  2. ST3Gal3, asialo-transferrin
  3. CMP-SA, ST3Gal3

a-e = 0; n = 1; R' = linker-transferrin.

FIG. 52L

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a-d, i, q-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 or 1.

n, v-y = 0; z = 0 or 1; R = polymer, toxin, radioisotope-complex, drug, glycoconjugate.

R' = H, sugar, glycoconjugate.

z

FIG. 53A

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CHO, BHK, 293 cells, Vero or transgenic animal expressed Rituxan.  
 a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓  
 1. galactosyltransferase, UDP-Gal  
 2. CMP-SA-toxin, ST3Gal3

a, c, i, j, l (independently selected) = 0 or 1;  
 e, g, r, t = 1;  
 f, h, k, m, n, s, u-y = 0; q, z = 1;  
 v-y (independently selected) = 1,  
 when j, l (independently selected) is 1;  
 R = toxin.

FIG. 53B

CHO, BHK, 293 cells, Vero or fungal expressed Rituxan.  
 a, c, e, g, i, r, t (independently selected) = 0 or 1;  
 b, d, f, h, j-m, n, s, u-y = 0; q, z = 1.

- ↓  
 1. galactosyltransferase,  
 UDP-Gal-drug

a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, j-m, n, s, u-y = 0; q, z = 1;  
 v-y (independently selected) = 1,  
 when a, c (independently selected) is 1;  
 R = toxin.

FIG. 53C

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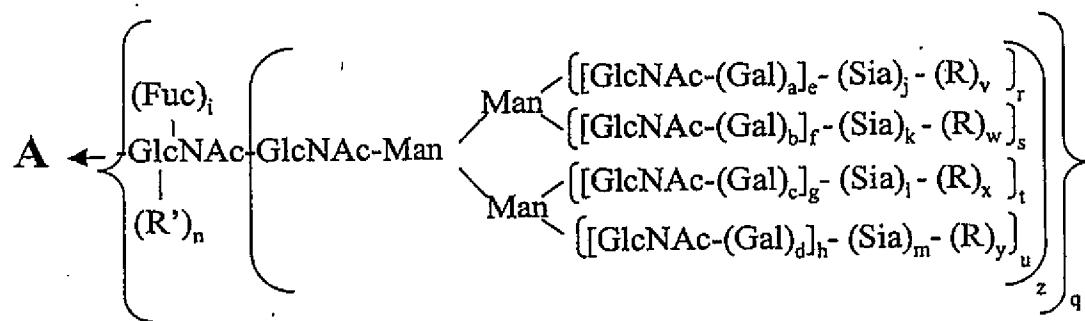
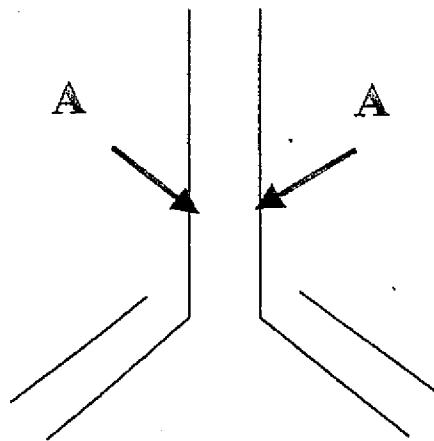
Fungi expressed Rituxan.  
e, g, i, r, t (independently selected) = 0 or 1;  
a-d, f, h, j-m, n, s, u-y = 0; q, z = 1.

1. Endo-H
  2. Galactosyltransferase, UDP-Gal
  3. CMP-SA-radioisotope complex, ST3Gal3
- ↓

a-m, r-z= 0; q, n = 1;  
 $R' = \text{-Gal-Sia-radioisotope complex.}$

FIG. 53D

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a-d, i, q-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 or 1.

n, v-y = 0; z = 0 or 1;

R = polymer, toxin, radioisotope-complex, drug,  
glycoconjugate, mannose, oligo-mannose.

R' = H, glycosyl residue, modifying group, glycoconjugate.

**FIG. 53E**

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CHO, BHK, 293 cells, Vero or transgenic animal expressed Rituxan.

a, c, i (independently selected) = 0 or 1;  
 e, g, r, t = 1; b, d, f, h, j-m, n, s, u-y = 0;  
 q, z = 1.

- ↓  
 1. galactosyltransferase, UDP-Gal  
 2. CMP-SA-PEG, ST3Gal3

a, c, i, j, l (independently selected) = 0 or 1;  
 e, g, r, t = 1; f, h, k, m, n, s, u-y = 0;  
 q, z = 1; v-y (independently selected) = 1,  
 when j, l (independently selected) is 1;  
 R = PEG.

### FIG. 53F

Fungi, yeast or CHO expressed Rituxan.

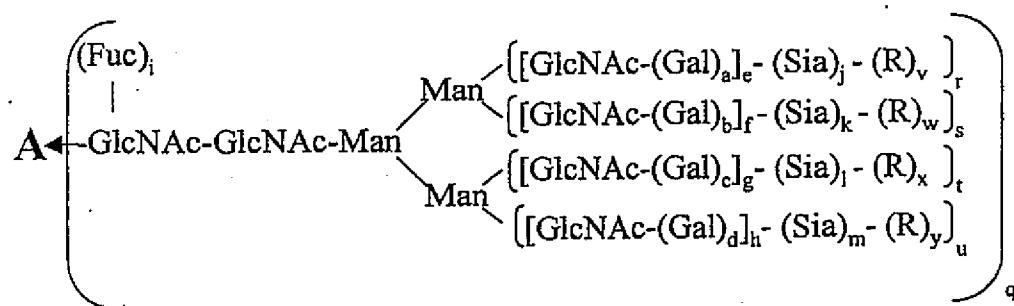
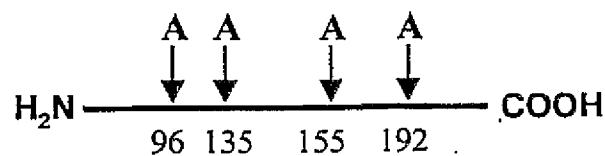
e, g, i, r, t, v, x (independently selected) = 0 or 1;  
 a-d, f, h, j-m, n, s, u, w, y = 0; q, z = 1;  
 R (independently selected) = mannose, oligomannose,  
 polymannose.

- ↓  
 1. mannosidases (alpha and beta)  
 2. GNT-I,II, UDP-GlcNAc  
 ↓ 3. Galactosyltransferase, UDP-Gal-radioisotope

a-m, r-z= 0; q, n = 1;  
 R' = -Gal-radioisotope complex.

### FIG. 53G

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a-d, i, q-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 6.

j-m (independently selected) = 0 to 100.

v-y = 0;      R = mannose, polymer.

FIG. 54A

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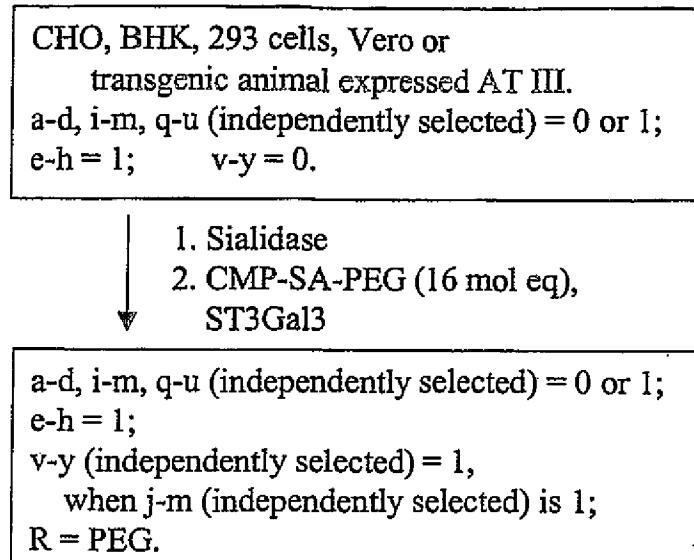


FIG. 54B

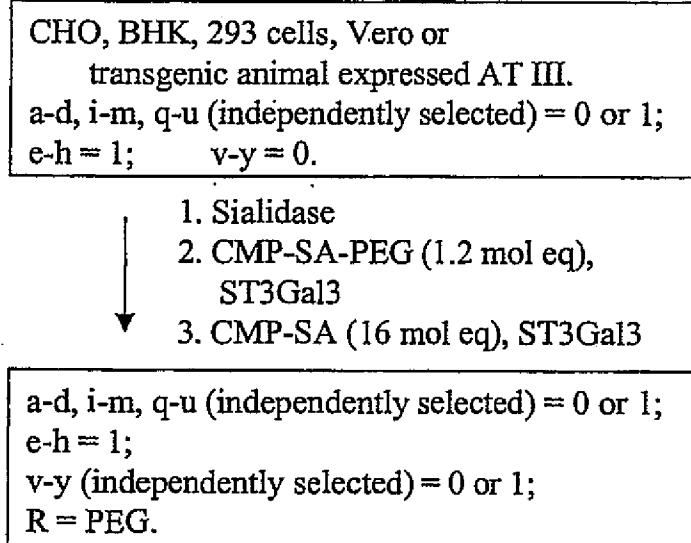


FIG. 54C

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NSO expressed AT III.  
 a-d, i-m, q-u (independently selected) = 0 or 1;  
 e-h = 1; v-y = 0;  
 Sia (independently selected) = Sia or Gal.

- ↓  
 1. Sialidase and  $\alpha$ -galactosidase  
 2. Galactosyltransferase, UDP-Gal  
 3. CMP-SA-PEG, ST3Gal3

a-d, i-m, q-u (independently selected) = 0 or 1;  
 e-h = 1;  
 v-y (independently selected) = 1,  
 when j-m (independently selected) is 1;  
 R = PEG.

FIG. 54D

CHO, BHK, 293 cells, Vero or  
 transgenic animal expressed AT III.  
 a-d, i-m, q-u (independently selected) = 0 or 1;  
 e-h = 1; v-y = 0.

- ↓  
 1. Sialidase  
 2. CMP-SA-PEG (16 mol eq),  
 ST3Gal3  
 3. CMP-SA, ST3Gal3

a-d, i-m, q-u (independently selected) = 0 or 1;  
 e-h = 1;  
 v-y (independently selected) = 0 or 1;  
 R = PEG.

FIG. 54E

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CHO, BHK, 293 cells, Vero or  
transgenic animal expressed AT III.  
a-d, i-m, q-u (independently selected) = 0 or 1;  
e-h = 1; v-y = 0.

- ↓  
1. CMP-SA-levulinate, ST3Gal3,  
buffer, salt  
2. H<sub>4</sub>N<sub>2</sub>-PEG

a-d, i-m, q-u (independently selected) = 0 or 1;  
e-h = 1; v-y (independently selected) = 0 or 1;  
R = PEG.

FIG. 54F

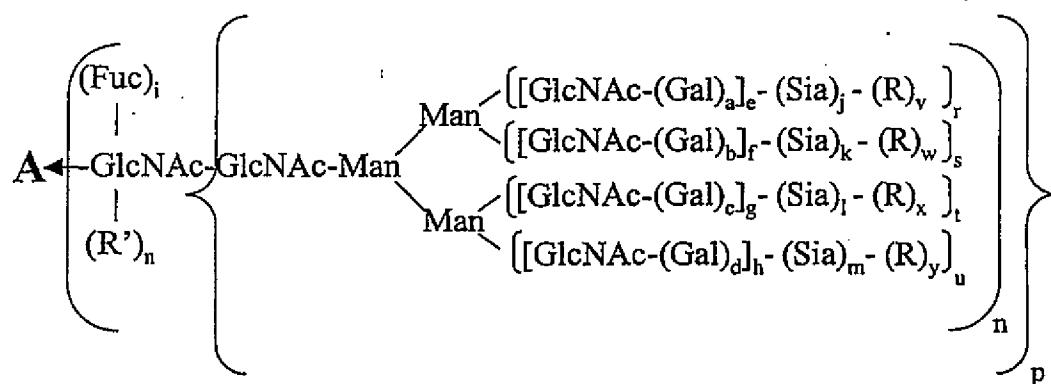
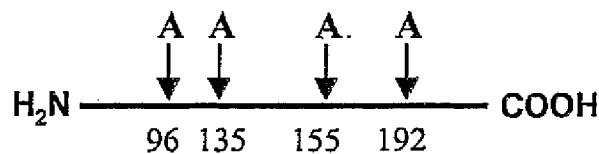
CHO, BHK, 293 cells, Vero expressed AT III.  
a-d, i-m, q-u (independently selected) = 0 or 1;  
e-h = 1; v-y = 0.

- ↓  
1. CMP-SA, poly- $\alpha$ 2,8-ST

a-d, i, q-u (independently selected) = 0 or 1;  
e-h = 1; j-m (independently selected) = 0-20;  
v-y (independently selected) = 0.

FIG. 54G

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a-d, i, p-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 6.

j-m (independently selected) = 0 to 100.

v-y = 0 to 100.

R = polymer, linker, mannose.

R' = H, sugar, glycoconjugate.

FIG. 54H

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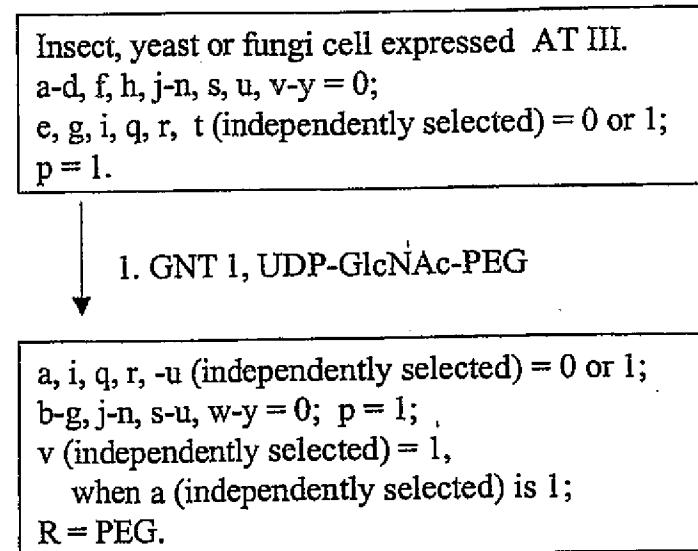


FIG. 54I

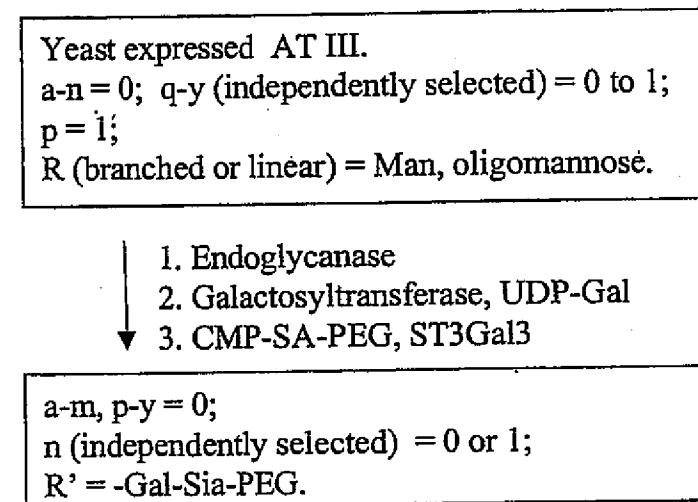


FIG. 54J

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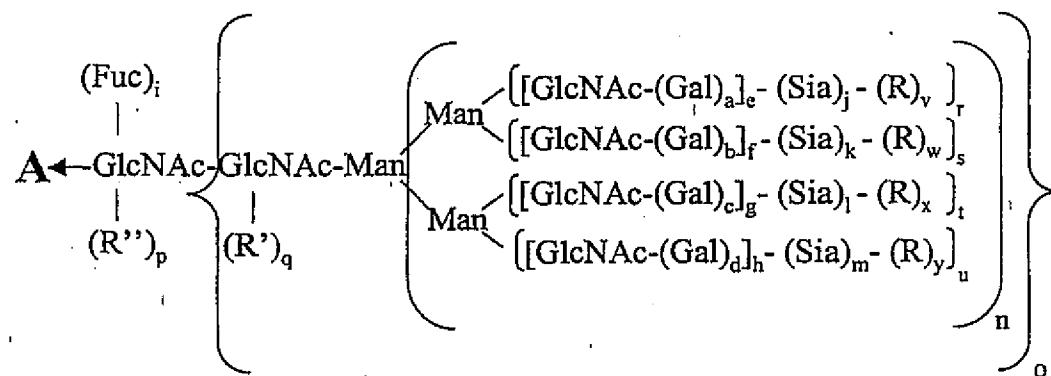
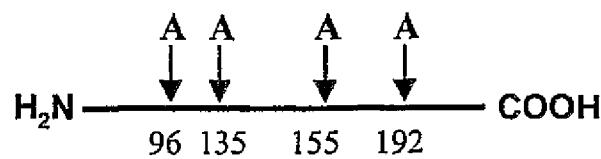
CHO, BHK, 293 cells, Vero expressed AT III.  
a-d, i-m, q-u (independently selected) = 0 or 1;  
e-h = 1; v-y = 0.

- ↓
1. CMP-SA-linker-Gal-UDP,  
ST3Gal3
  2. Galactosyltransferase, transferrin  
treated with endoglycanase

a-m, q-u (independently selected) = 0 or 1;  
p = 1; n = 0;  
v-y (independently selected) = 0 or 1;  
R = linker-transferrin.

FIG. 54K

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a-d, i, n-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 to 20.

R = polymer.

R', R'' (independently selected) = sugar, glycoconjugate.

FIG. 54L

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Yeast expressed AT III.  
 $a-h, i-m, p, q = 0;$   
 $R$  (independently selected) = mannose,  
 oligomannose, polymannose;  
 $r-u, v-y$  (independently selected) = 0 or 1;  
 $n, o = 1.$

↓  
 1. endoglycanase  
 ↓ 2. Galactosyltransferase, UDP-Gal-PEG

$a-h, i-o, q, r-u, v-y = 0; p = 1.$   
 $R'' = \text{Gal-PEG}.$

## FIG. 54M

Plant expressed AT III.  
 $a-d, f-h, j-m, p, s-u, v-y = 0;$   
 $e, i, q, r$  (independently selected) = 0 or 1;  
 $n, o = 1; R' = \text{xylose}.$

↓  
 1. xylosidase  
 3. Galactosyl transferase, UDP-Gal-PEG

$b-d, f-h, j-m, p, q, s-u, w-y = 0;$   
 $a, e, i, r$  (independently selected) = 0 or 1;  
 $n, o = 1; R = \text{PEG}.$

## FIG. 54N

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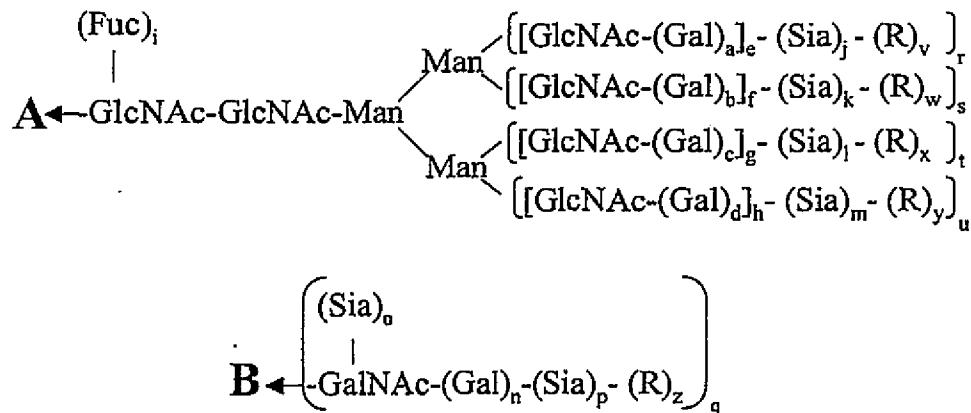
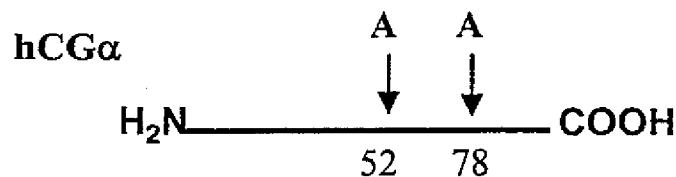
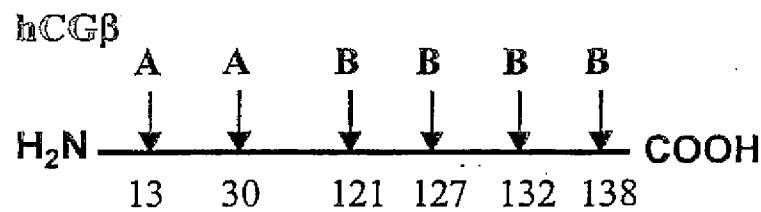
CHO, BHK, 293 cells, Vero, transgenic animal  
expressed AT III.  
a-h, i-o, r-u (independently selected) = 0 or 1;  
p, q, v-y = 0.

↓  
1. CMP-SA-PEG,  
ST3Gal3

a-h, i-o, r-u (independently selected) = 0 or 1;  
p, q = 0; v-y (independently selected) = 0 or 1;  
R = PEG.

FIG. 54O

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a-d, i, n-u (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 4.

j-m (independently selected) = 0 to 20.

v-z = 0; R = polymer

FIG. 55A

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CHO, BHK, 293 cells, insect cell, Vero  
expressed hCG

a-g, n, q = 1; h = 1 to 3; j-m, i, o, p  
(independently selected) = 0 or 1; r-u  
(independently selected) = 0 to 1; v-z = 0

- ↓  
1. Sialidase  
2. CMP-SA-PEG, ST3Gal3

a-g, n, q = 1; h = 1 to 3; i, o, p (independently selected) = 0 or 1; r-u (independently selected) = 0 or 1; j-m, v-y (independently selected) = 0 or 1; R = PEG; z = 0.

FIG. 55B

Insect cell, yeast, fungi expressed hCG

a-d, f, h, j-m, o, p, s, u, v-z = 0;  
e, g, i, n, q, r, t (independently selected)  
= 0 or 1.

- ↓  
1. GNT's 1&2, UDP-GlcNAc  
2. Galactosyltransferase, UDP-Gal  
2. CMP-SA-PEG, ST3Gal3

b, d, f, h, k, m, o, p, s, u, w, y, z = 0;  
a, c, e, g, i, n, q, r, t (independently selected)  
= 0 or 1;  
j, l, v, x (independently selected) = 0 or 1;  
R = PEG.

FIG. 55C

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CHO, BHK, 293 cells, insect cell,  
 Vero expressed hCG  
 a-q, r-u (independently selected) = 0 or 1;  
 v-z = 0.

- ↓
1. sialidase
  2. CMP-SA, ST3Gal3
  3. CMP-SA-PEG, ST3Gal1

a-h, i-o, q, r-u (independently selected) = 0 or 1;  
 v-y = 0; p, z = 0 or 1; R = PEG.

FIG. 55D

CHO, BHK, 293 cells, insect cell or  
 Vero expressed hCG  
 a-g, n, q = 1; h = 1 to 3;  
 j-m, i, o, p (independently selected) = 0 or 1;  
 r-u (independently selected) = 0 or 1; v-z = 0

- ↓
1. CMP-SA-PEG, ST3Gal3

a-g, n, q = 1; h = 1 to 3;  
 i, o, p (independently selected) = 0 or 1;  
 r-u (independently selected) = 0 to 1;  
 j-m, v-y (independently selected) = 0 or 1;  
 R = PEG; z = 0.

FIG. 55E

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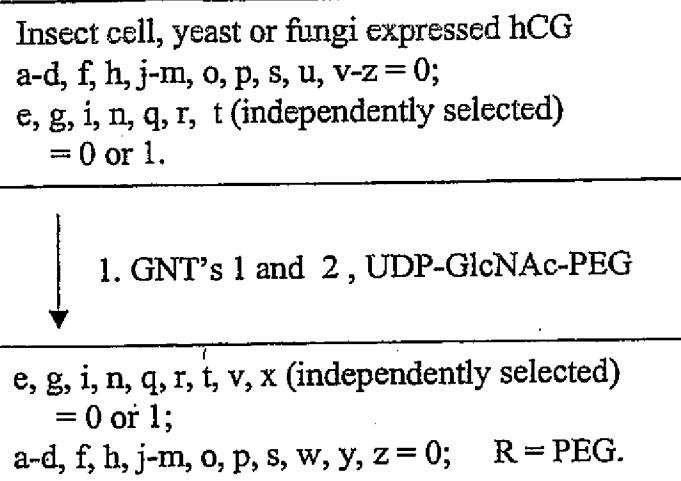


FIG. 55F

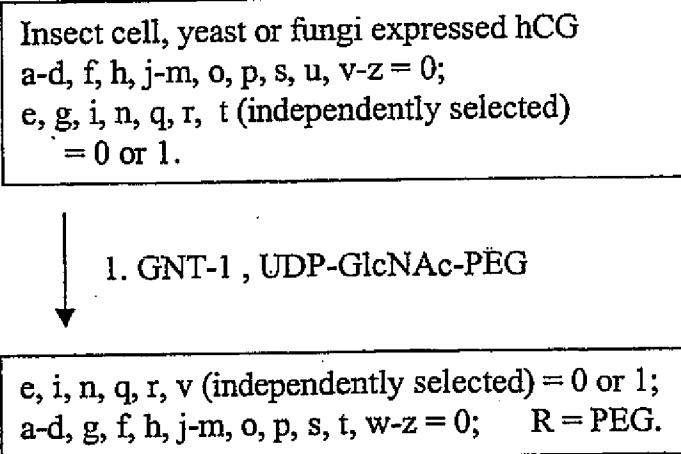


FIG. 55G

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CHO, BHK, 293 cells, insect cell or  
Vero expressed hCG  
a-g, n, q = 1; h = 1 to 3;  
j-m, i, o, p (independently selected) = 0 or 1;  
r-u (independently selected) = 0 or 1; v-z = 0

↓  
1. CMP-SA-PEG, ST3Gal3

a-g, n, q = 1; h = 1 to 3;  
i, o (independently selected) = 0 or 1;  
r-u (independently selected) = 0 to 1;  
j-m, p, z (independently selected) = 0 or 1;  
R = PEG; v-y = 0.

FIG. 55H

CHO, BHK, 293 cells, Vero expressed hCG  
a-g, n, q = 1; h = 1 to 3;  
j-m, i, o, p (independently selected) = 0 or 1;  
r-u (independently selected) = 0 or 1; v-z = 0

↓  
1. CMP-SA-PEG,  $\alpha$ 2,8-ST

a-g, n, q = 1; h = 1 to 3;  
i, o, p (independently selected) = 0 or 1;  
r-u (independently selected) = 0 to 1;  
j-m (independently selected) = 0 to 2;  
v-y (independently selected) = 1, when j-m  
(independently selected) is 2; R = PEG; z = 0.

FIG. 55I

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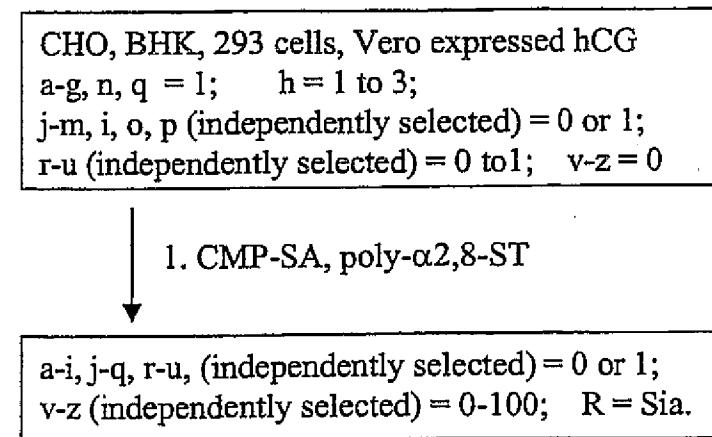
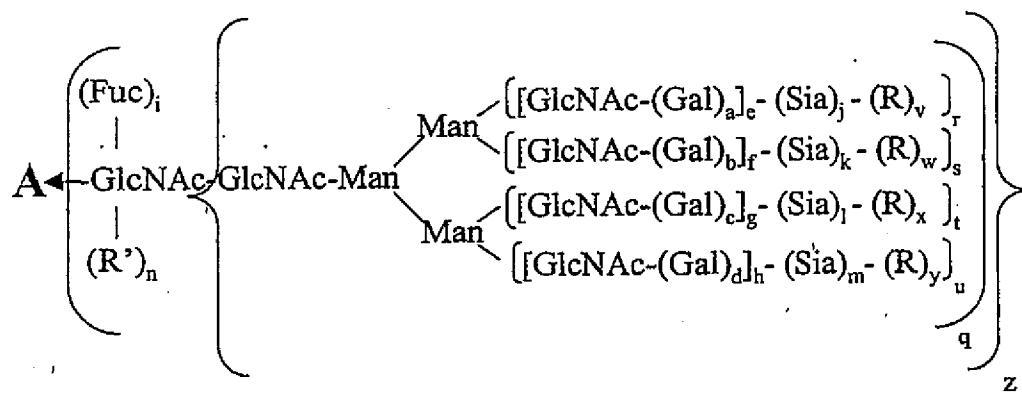
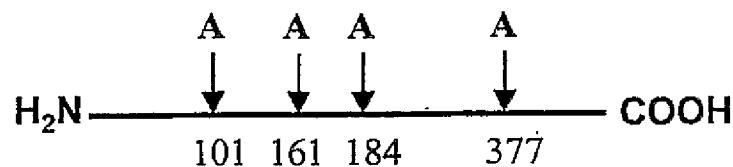


FIG. 55J

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a-d, i, n, q-u, z (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 6.

j-m (independently selected) = 0 to 100.

v-y = 0 to 100;

R = mannose, mannose-6-phosphate and mannose, polymer.

FIG. 56A

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CHO, BHK, 293 cells, insect cells, Vero expressed and secreted alpha-galactosidase  
 a-h, i-m, q-u (independently selected) = 0 or 1;  
 $z = 1$ ; n, v-y = 0; and when a-n = 0, then r-u (independently selected) = 0 or 1; v-y (independently selected) = 0-100;  
 R = mannose or mannose with mannose-6-phosphate.

- ↓
1. Endo-H
  2. Galactosyltransferase, UDP-Gal-PEG-transferrin

a-h, i-m, q-u (independently selected) = 0 or 1;  
 n, v-y = 0; z = 1; and when z = 0 and q = 1,  
 then n (independently selected) = 0 or 1;  
 R' = Gal-PEG-transferrin.

## FIG. 56B

CHO, BHK, 293 cells, Insect cells,  
 Vero expressed and secreted alpha-galactosidase  
 a-h, i-m, q-u (independently selected) = 0 or 1;  $z = 1$ ; n, v-y = 0; and when a-n = 0, then r-u (independently selected) = 0 or 1; v-y (independently selected) = 0-100;  
 R = mannose or mannose with mannose-6-phosphate.

- ↓
1. Sialidase
  2. CMP-SA-linker-Mannose-6-phosphate
- ST3Gal3

a-h, i-m, q-u, v-y (independently selected) = 0 or 1;  
 $n = 0$ ;  $z = 1$ ; R = mannose-6-phosphate; and when a-n = 0, then r-u (independently selected) = 0 or 1;  
 v-y (independently selected) = 0-100;  
 R = mannose or mannose with mannose-6-phosphate.

## FIG. 56C

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NSO expressed alpha-galactosidase.  
 a-d, i-m, q-u (independently selected) = 0 or 1;  
 e-h = 1; v-y = 0;  
 Sia (independently selected) = Sia or Gal.

- ↓
1. Sialidase and  $\alpha$ -galactosidase
  2. Galactosyltransferase, UDP-Gal
  3. CMP-SA-linker-mannose-6-phosphate  
sialyltransferase

a-d, i-m, q-u (independently selected) = 0 or 1; e-h = 1;  
 v-y (independently selected) = 1, when j-m (independently selected) is 1; R = mannose-6 phosphate

## FIG. 56D

CHO, BHK, 293 cells, Insect cells, Vero expressed and secreted alpha-galactosidase  
 a-h, i-m, q-u (independently selected) = 0 or 1; z = 1;  
 n, v-y = 0; and when a-n = 0, then r-u (independently selected) = 0 or 1; v-y (independently selected) = 0-100;  
 R = mannose or mannose with mannose-6-phosphate.

- ↓
1. Sialidase
  2. CMP-SA-PEG, sialyltransferase

a-h, i-m, q-u, v-y (independently selected) = 0 or 1; n = 0; z = 1; R = PEG; and when a-n = 0, then r-u (independently selected) = 0 or 1; v-y = 0-100; R = mannose or mannose with mannose-6-phosphate.

## FIG. 56E

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CHO, BHK, 293 cells, Insect cells, Vero, yeast, fungi  
expressed alpha-galactosidase.  
a-i, v-y = 0; q (independently selected) = 0 or 1; z = 1;  
r-u (independently selected) = 0 or 1;  
j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate.

↓  
1. mannosyltransferase,  
GDP-mannose-linker-ApoE

a-i = 0; q (independently selected) = 0 or 1; z = 1;  
r-u (independently selected) = 0 or 1;  
j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate;  
v-y (independently selected) = 0 or 1;  
R = mannose-linker-ApoE.

## FIG. 56F

CHO, BHK, 293 cells, Insect cells, Vero, yeast,  
fungi expressed alpha-galactosidase.  
a-i, v-y = 0; q (independently selected) = 0 or 1; z = 1;  
r-u (independently selected) = 0 or 1;  
j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate.

↓  
1. endo-H  
2. galactosyltransferase,  
UDP-Gal-linker-alpha2-macroglobulin

a-m, r-z = 0; n, q (independently selected) = 0 or 1;  
R' = galactose-linker-alpha2-macroglobulin.

## FIG. 56G

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Insect cell, yeast, fungi expressed  
alpha-galactosidase.  
a-d, f, h, j-m, s, u, v-y = 0;  
e, g, i, q, r, t (independently selected) = 0 or 1.

↓  
1. GNT-1,  
UDP-GlcNAc-PEG-mannose-6-phosphate

e, i, q, r, v (independently selected) = 0 or 1;  
a-d, f-h, j-n, s-u, w-y = 0; z = 1;  
R = PEG-mannose-6-phosphate.

FIG. 56H

Insect cell, yeast, fungi expressed  
alpha-galactosidase.  
a-d, f, h, j-m, s, u, v-y = 0;  
e, g, i, q, r, t (independently selected) = 0 or 1.

↓  
1. GNT-1, UDP-GlcNAc  
2. galactosyltransferase,  
UDP-Gal-PEG-transferrin

a, e, i, q, r, v (independently selected) = 0 or 1;  
b-d, f-h, j-n, s-u, w-y = 0; z = 1;  
R = PEG-transferrin.

FIG. 56I

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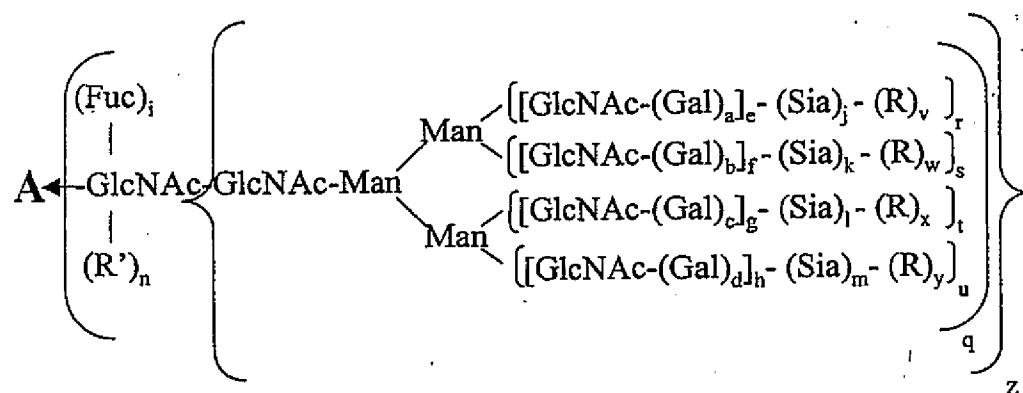
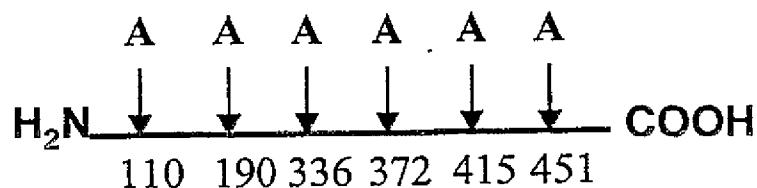
Insect cell, yeast, fungi expressed  
alpha-galactosidase.  
a-d, f, h, j-m, s, u, v-y = 0;  
e, g, i, q, r, t (independently selected) = 0 or 1.

- ↓  
1. GNT-1 and 2, UDP-GlcNAc  
2. galactosyltransferase, UDP-Gal  
3. sialyltransferase,  
    CMP-SA-PEG-melanotransferrin

a, c, e, g, i, j, l, q, r, t, v, x (independently  
selected) = 0 or 1;  
b, d, f, h, k, m, n, s, u, w, y = 0;  
z = 1; R = PEG-melanotransferrin.

FIG. 56J

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a-d, i, n, q-u, z (independently selected) = 0 or 1.

e-h (independently selected) = 0 to 6.

j-m (independently selected) = 0 to 100.

v-y = 0 to 100;

R = mannose, mannose-6-phosphate and mannose, polymer.

FIG. 57A

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CHO, BHK, 293 cells, Insect cells, Vero expressed  
and secreted alpha-iduronidase  
a-h, i-m, q-u (independently selected) = 0 or 1; z = 1;  
n, v-y = 0; and when a-n = 0, then r-u (independently  
selected) = 0 or 1; v-y (independently selected) = 0-100;  
R = mannose or mannose with mannose-6-phosphate.

↓  
1. Endo-H  
2. Galactosyltransferase, UDP-Gal-PEG-transferrin

a-h, i-m, q-u (independently selected) = 0 or 1;  
n, v-y = 0; z = 1; and when z = 0 and q = 1, then n  
(independently selected) = 0 or 1; R' = Gal-PEG-transferrin.

FIG. 57B

CHO, BHK, 293 cells, Insect cells, Vero expressed  
and secreted alpha-iduronidase  
a-h, i-m, q-u (independently selected) = 0 or 1; z = 1;  
n, v-y = 0; and when a-n = 0, then r-u (independently  
selected) = 0 or 1; v-y (independently selected) = 0-100;  
R = mannose or mannose with mannose-6-phosphate.

↓  
1. Sialidase  
2. CMP-SA-linker-Mannose-6-phosphate ST3Gal3

a-h, i-m, q-u, v-y (independently selected) = 0 or 1; n = 0;  
z = 1; R = mannose-6-phosphate; and when a-n = 0,  
then r-u (independently selected) = 0 or 1;  
v-y (independently selected) = 0-100;  
R = mannose or mannose with mannose-6-phosphate.

FIG. 57C

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NSO expressed alpha-iduronidase.

a-d, i-m, q-u (independently selected) = 0 or 1; e-h = 1;  
v-y = 0; Sia (independently selected) = Sia or Gal.

- ↓
1. Sialidase and  $\alpha$ -galactosidase
  2. Galactosyltransferase, UDP-Gal
  3. CMP-SA-linker-mannose-6-phosphate sialyltransferase

a-d, i-m, q-u (independently selected) = 0 or 1;

e-h = 1; v-y (independently selected) = 1,

when j-m (independently selected) is 1;

R = mannose-6 phosphate

## FIG. 57D

CHO, BHK, 293 cells, Insect cells, Vero expressed  
and secreted alpha-iduronidase

a-h, i-m, q-u (independently selected) = 0 or 1; z = 1;  
n, v-y = 0; and when a-n = 0, then r-u (independently  
selected) = 0 or 1; v-y (independently selected) = 0-100;  
R = mannose or mannose with mannose-6-phosphate.

- ↓
1. Sialidase
  2. CMP-SA-PEG, sialyltransferase

a-h, i-m, q-u, v-y (independently selected) = 0 or 1; n = 0;

z = 1; R = PEG; and when a-n = 0, then r-u

(independently selected) = 0 or 1; v-y = 0-100;

R = mannose or mannose with mannose-6-phosphate.

## FIG. 57E

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CHO, BHK, 293 cells, Insect cells, Vero, yeast, fungi  
expressed alpha-iduronidase.  
a-i, v-y = 0; q (independently selected) = 0 or 1; z = 1;  
r-u (independently selected) = 0 or 1;  
j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate.

↓  
1. mannosyltransferase,  
GDP-mannose-linker-ApoE

a-i = 0; q (independently selected) = 0 or 1; z = 1;  
r-u (independently selected) = 0 or 1; j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate;  
v-y (independently selected) = 0 or 1;  
R = mannose-linker-ApoE.

## FIG. 57F

CHO, BHK, 293 cells, Insect cells, Vero, yeast, fungi  
expressed alpha-iduronidase.  
a-i, v-y = 0; q (independently selected) = 0 or 1;  
z = 1; r-u (independently selected) = 0 or 1;  
j-m (independently selected) = 0-100;  
Sia = mannose or mannose with mannose-6-phosphate.

↓  
1. endo-H  
2. galactosyltransferase,  
UDP-Gal-linker-alpha2-macroglobulin

a-m, r-z = 0; n, q (independently selected) = 0 or 1;  
R' = galactose-linker-alpha2-macroglobulin.

## FIG. 57G

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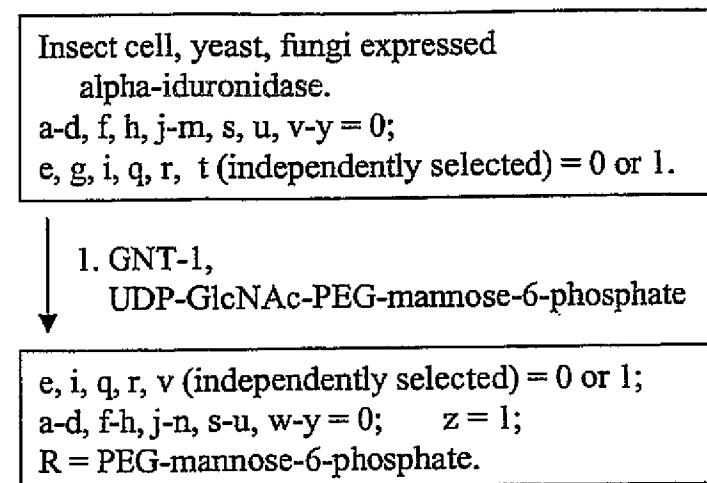


FIG. 57H

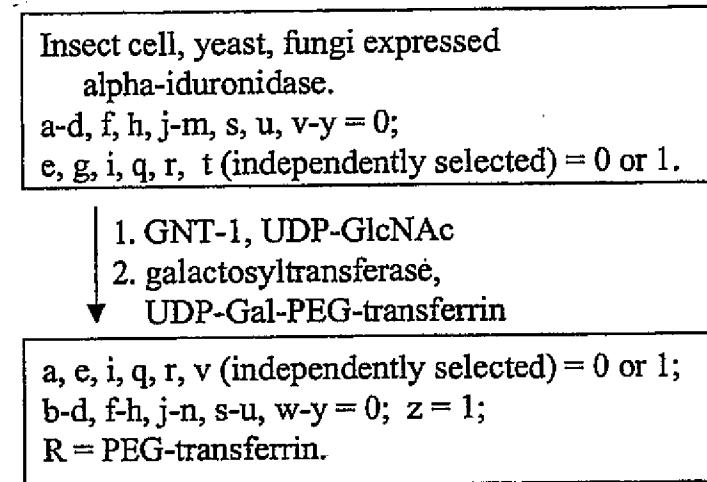


FIG. 57I

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Insect cell, yeast, fungi expressed  
alpha-iduronidase.  
a-d, f, h, j-m, s, u, v-y = 0;  
e, g, i, q, r, t (independently selected) = 0 or 1.

- ↓  
1. GNT-1 and 2, UDP-GlcNAc  
2. galactosyltransferase, UDP-Gal  
3. sialyltransferase,  
    CMP-SA-PEG-melanotransferrin

a, c, e, g, i, j, l, q, r, t, v, x  
(independently selected) = 0 or 1;  
b, d, f, h, k, m, n, s, u, w, y = 0; z = 1;  
R = PEG-melanotransferrin.

FIG. 57J

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FIG. 58A

ACCCCCCTGGGCCCTGCCAGCTCCCTGCCAGAGCTTCCTGCTCAAT  
GCTTAGAGCAAGTGAGGAAGAGATCCAGGGCGATGGCGCAGCGCTCCAG  
GAGAACGCTGTGCCACCTACAAGCTGTGCCACCCGAGGAGCTGGT  
GCTGCTCGGACACTCTCTGGCATCCCTGGCTCCCTGAGCAGCTG  
CCCCAGCCAGGCCCTGCAGCTGGCAGGCTGCTTGAGCCAACCTCCATA  
GCGGCCTTTCCCTACCAAGGGCTCCTGCAGGCCCTGGAAGGGATCT  
CCCCCGAGTTGGGTCCCACCTGGACACACTGCAGCTGGACGTCGCCG  
ACTTTGCCACCACCATCTGGCAGCAGATGGAAGAACTGGGAATGCC  
CCTGCCCTGCAGCCCACCCAGGGTCCATGCCGGCTCGCCTTGCT  
TTCCAGCGCCGGGCAGGAGGGTCCGGTTGCCTCCATCTGCAGAG  
CTTCCTGGAGGTGTCGTACCGCGTTACGCCACCTGCCAGCCCTG  
A

FIG. 58B

Thr Pro Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys Cys Leu Glu  
Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln Glu Lys Leu Cys Ala Thr  
Tyr Lys Leu Cys His Pro Glu Glu Leu Val Leu Gly His Ser Leu Gly Ile Pro  
Trp Ala Pro Leu Ser Ser Cys Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser  
Gln Leu His Ser Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile  
Ser Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp Phe  
Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro Ala Leu Gln Pro  
Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe Gln Arg Arg Ala Gly Gly Val  
Leu Val Ala Ser His Leu Gln Ser Phe Leu Glu Val Ser Tyr Arg Val Leu Arg His  
Leu Ala Gln Pro

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FIG. 59A

GCGCCTTATGTACCCACAAAAACTATTCAAAAAAGTTGCTCTA  
AGAATATAGTTATCAAGTTAAGTAAAATGTCAATAGCCTTTAAATTAA  
ATTTTAATTGTTTATCATTCTTGCAATAATAAAAACATTAACCTTAT  
ACTTTTAATTAAATGTATAAGAATAGAGATATAACATAGGATATGAAA  
TAGATACACAGTGTATGTGATTTAAATAATGGGAGATTCAATC  
AGAAAAAAAGTTCTAAAAAAGGCTCTGGGGTAAAAGAGGAAGGAAAC  
AATAATGAAAAAAATGTGGTGAGAAAAACAGCTGAAAACCCATGTA  
AAGAGTGTATAAAGAAAGCAAAAGAGAAGTAGAAAGTAACACAGG  
GGCATTGGAAAATGTAAACGAGTATGTCCTATTAAAGGCTAGGC  
ACAAAGCAAGGTCTTCAGAGAACCTGGAGCCTAAGGTTAGGCTCAC  
CCATTCAACCAGTCTAGCAGCATCTGCAACATCTACAATGGCCTGA  
CCTTGCTTACTGGTGGCCCTCCTGGTGCTCAGCTGCAAGTCAAGCT  
GCTCTGTGGCTGTGATCTGCCTCAAACCCACAGCCTGGTAGCAGG  
AGGACCTTGATGCTCCTGGCACAGATGAGGAGAATCTCTCTTCTCC  
TGCTTGAGGACAGACATGACTTGGATTCCCCAGGAGGAGTTGG  
CAACCAGTTCAAAGGCTGAAACCATCCCTGTCCATGAGATGA  
TCCAGCAGATCTCAATCTTCAGCACAAAGGACTCATCTGCTGCTT  
GGGATGAGACCCCTCTAGACAAATTCTACACTGAACCTACCCAGCAG  
CTGAATGACCTGGAAGCCTGTGATACAGGGGGTGGGGTGACAGA  
GAECTCCCTGATGAAGGAGGACTCCATTCTGGCTGTGAGGAAATACT  
TCCAAAGAATCACTCTCTATCTGAAAGAGAAGAAATACAGCCCTGT  
GCCTGGAGGGTGTAGAGCAGAAATCATGAGATCTTTCTTGTCA  
ACAAACTTGCAAGAAAGTTAAGAAGTAAGGAATGAAAATGGTTCA  
ACATGGAAATGATTTCATTGATTGCTATGCCAGCTCACCTTTATG  
ATCTGCCATTCAAAGACTCATGTTCTGCTATGACCATGACACGATT  
TAAATCTTTCAAATGTTTAGGAGTATTAAATCACACATTGATTCTAG  
CTCTTAAGGCACTAGTCCCTACAGAGGACCATGCTGACTGATCCATT  
ATCTATTAAATATTTAAAATATTATTATTAAACTATTATAAAAC  
AACTATTGTTGTCATATTATGTATGTGCACCTTGACAGTGGTTA  
ATGTAATAAAATGTGTTCTTGTATTGGTAAATTATTGTTGTT  
CATTGAACCTTGCTATGGAACCTTGACTTGTATTCTTAAATG  
AAATTCCAAGCCTAATTGTGCAACCTGATTACAGAATAACTGGTACA  
CTTCATTGTCCATCAATATTATTCAGAGATATAAGTAAAATAAAC  
TTTCTGTAAACCAAGTTGTATGTACTCAAGATAACAGGGTGAACC  
TAACAAATACAATTCTGCTCTTGTGATTGATTGTATGAAAAA  
AAACTAAAATGGTAATCATACTTAATTATCAGTTATGGTAAATGGT  
ATGAAGAGAAGAAGGAACG

FIG. 59B

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Met Ala Leu Thr Phe Ala Leu Leu Val Ala Leu Val Leu Ser Cys Lys Ser Ser Cys Ser Val Gly Cys Asp Leu Pro Gln Thr His Ser Leu Gly Ser Arg Arg Thr Leu Met Leu Leu Ala Gln Met Arg Arg Ile Ser Leu Phe Ser Cys Leu Lys Asp Arg His Asp Phe Gly Phe Pro Gln Glu Glu Phe Gly Asn Gln Phe Gln Lys Ala Glu Thr Ile Pro Val Leu His Glu Met Ile Gln Gln Ile Phe Asn Leu Phe Ser Thr Lys Asp Ser Ser Ala Ala Trp Asp Glu Thr Leu Leu Asp Lys Phe Tyr Thr Glu Leu Tyr Gln Gln Leu Asn Asp Leu Glu Ala Cys Val Ile Gln Gly Val Gly Val Thr Glu Thr Pro Leu Met Lys Glu Asp Ser Ile Leu Ala Val Arg Lys Tyr Phe Gin Arg Ile Thr Leu Tyr Leu Lys Glu Lys Lys Tyr Ser Pro Cys Ala Trp Glu Val Val Arg Ala Glu Ile Met Arg Ser Phe Ser Leu Ser Thr Asn Leu Gln Glu Ser Leu Arg Ser Lys Glu

FIG. 59C

ATGGCCCTCCGTTCCTCTACTGGCAGCCCTAGTGATGACCAGCTAT  
 AGCCCTGTTGGATCTCTGGGCTGTGATCTGCCTCAGAACCATGGCCTA  
 CTTAGCAGGAACACCTTGGTCTGCACCAAATGAGGAGAACTCC  
 CCTTTCTTGTCTCAAGGACAGAACAGAGACTTCAGGTTCCCCCAGGAG  
 ATGGTAAAAGGGAGCCAGTTGCAGAACAGGCCATGTCATGTCCTGTCCT  
 CCATGAGATGCTGCAGCAGATCTTCAGCCTCTCCACACAGAGCGCTC  
 CTCTGCTGCCTGGAACATGACCCCTCTAGACCAACTCCACACTGGACT  
 TCATCAGCAACTGCAACACCTGGAGACCTGCTTGCAGGTAGTGG  
 GAGAAGGAGAACTGCTGGGCAATTAGCAGCCCTGCAGCTGACCTTG  
 AGGAGGTACTTCCAGGGAATCCGTCTACCTGAAAGAGAAGAAATA  
 CAGCGACTGTGCCTGGGAAGTTGTCAAGATGGAAATCATGAAATCCT  
 TGTTCTTATCAACAAACATGCAAGAAAGACTGAGAAGTAAAGATAGA  
 GACCTGGGCTCATCTTGA

FIG. 59D

Met Ala Leu Leu Phe Pro Leu Leu Ala Ala Leu Val Met Thr Ser Tyr Ser Pro Val Gly Ser Leu Gly Cys Asp Leu Pro Gln Asn His Gly Leu Leu Ser Arg Asn Thr Leu Val Leu Leu His Gln Met Arg Arg Ile Ser Pro Phe Leu Cys Leu Lys Asp Arg Arg Asp Phe Arg Phe Pro Gln Glu Met Val Lys Gly Ser Gln Leu Gln Lys Ala His Val Met Ser Val Leu His Glu Met Leu Gln Gln Ile Phe Ser Leu Phe His Thr Glu Arg Ser Ser Ala Ala Trp Asn Met Thr Leu Leu Asp Gln Leu His Thr Gly Leu

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FIG. 60A

ATGACCAACAAGTGTCTCCTCCAAATTGCTCTCCTGTTGCTTCCT  
 ACTACAGCTCTTCCATGAGCTACAACACTGCTGGATTCCCTACAAAGA  
 AGCAGCAATTTCAGTGTAGAAGCTCCTGTGGCAATTGAATGGGAG  
 GCTTGAATATTGCCTCAAGGACAGGATGAACCTTGACATCCCTGAGG  
 AGATTAAGCAGCTGCAGCAGTCCAGAAGGAGGACGCCGCATTGACC  
 ATCTATGAGATGCTCCAGAACATCTTGCTATTTCAGACAAGATTCA  
 TCTAGCACTGGCTGGAATGAGACTATTGTTGAGAACCTCTGGCTAA  
 TGTCTATCATCAGATAAACCATCTGAAGACAGTCCTGGAAAGAAAAAC  
 TGGAGAAAAGAAGATTACCAAGGGAAAACATGAGCAGTCTGCAC  
 CTGAAAAGATATTATGGGAGGATTCTGCATTACCTGAAGGCCAAGGA  
 GTACAGTCACTGTGCCTGGACCATAGTCAGAGTGGAAATCCTAAGGA  
 ACTTTACTTCATTAACAGACTACAGGTACACTCCGAAACTGAAGAT  
 CTCCTAGCCTGTCCTCTGGACTGGACAATTGCTCAAGCATTCTTC  
 AACCAAGCAGATGCTGTTAAGTGACTGATGGCTAATGTACTGCAAAT  
 GAAAGGACACTAGAAGATTGAAATTATTAAATTATGAGTTATT  
 TTTATTAT TTAAATTATTGGAAAATAAATTATTTGGTGC

FIG. 60B

Met Thr Asn Lys Cys Leu Leu Gln Ile Ala Leu Leu Cys Phe Ser Thr Thr Ala  
 Leu Ser Met Ser Tyr Asn Leu Leu Gly Phe Leu Gln Arg Ser Ser Asn Phe Gln  
 Cys Gln Lys Leu Leu Trp Gln Leu Asn Gly ArgLeu Glu Tyr Cys Leu Lys Asp  
 Arg Met Asn Phe Asp Ile Pro Glu Glu Ile Lys Gln Leu Gln Gln Phe Gln Lys Glu  
 Asp Ala Ala Leu Thr Ile Tyr Glu Met Leu Gln Asn Ile Phe Ala Ile Phe Arg Gln  
 Asp Ser Ser Ser Thr Gly Trp Asn Glu Thr Ile Val Glu Asn Leu Ala Asn Val  
 Tyr His Gln Ile Asn His Leu Lys Thr Val Leu Glu Glu Lys Leu Glu Lys Glu Asp  
 Phe Thr Arg Gly Lys Leu Met Ser Ser Leu His Leu Lys Arg Tyr Tyr Gly Arg Ile  
 Leu His Tyr Leu Lys Ala Lys Glu Tyr Ser His Cys Ala Trp Thr Ile Val Arg Val  
 Glu Ile Leu Arg Asn Phe Tyr Phe Ile Asn Arg Leu Thr Gly Tyr Leu Arg Asn

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FIG. 61A

ATGGTCTCCCAGGCCCTCAGGCTCCTCTGCCTCTGCTTGGGCTTCAG  
GGCTGCCTGGCTGCAGTCTCGTAACCCAGGAGGAAGGCCACGGCGT  
CCTGCACCGGCCGGCGGCCAACCGCGTCTGGAGGAGCTGCGGC  
CGGGCTCCCTGGAGAGGGAGTGCAAGGAGGAGCAGTGCCTCTCGA  
GGAGGCCCGGGAGATCTTCAAGGACGCGAGAGGACGAAGCTGTC  
TGGATTCTTACAGTGATGGGACCAGTGTGCCTCAAGTCCATGCCA  
GAATGGGGGCTCTGCAAGGACAGCTCCAGTCCTATATCTGCTTCT  
GCCTCCCTGCCTTCGAGGGCCGGAAGTGTGAGACGCACAAGGATGAC  
CAGCTGATCTGTGTGAACGAGAACGGCGGCTGTGAGCAGTACTGCAG  
TGACCACACGGGCACCAAGCGCTCCTGTCGGTGCCACGAGGGTACT  
CTCTGCTGGCAGACGGGTGTGCACACCCACAGTTGAATATCCA  
TGTGGAAAAATACCTATTCTAGAAAAAAAGAAATGCCAGCAAACCCA  
AGGCCGAATTGTGGGGGCAAGGTGTGCCCAAAGGGAGTGTCCA  
TGGCAGGTCTGTTGGTGAATGGAGCTCAGTTGTGTGGGGGAC  
CCTGATCAACACCATCTGGGTGGTCTCCGGGCCACTGTTCGACAA  
AATCAAGAACTGGAGGAACCTGATCGCGGTGCTGGCGAGCACGAC  
CTCAGCGAGCACGACGGGATGAGCAGAGCCGGGTGGCGCAGG  
TCATCATCCCCAGCACGTACGTCCGGCACCAACCACGACATC  
GCGCTGCTCCGCCTGCACCAAGCCGTGGTCTCACTGACCATGTGGTG  
CCCCTCTGCCTGCCGAACGGACGTTCTCTGAGAGGACGCTGGCTTC  
GTGCCTTCTCATTGGTCAGCGGCTGGGCCAGCTGCTGGACCGTGG  
GCCACGGCCCTGGAGCTCATGGTGTCAACGTGCCCGGCTGATGA  
CCCAGGACTGCCTGCAGCAGTCACGGAAAGGTGGAGACTCCCCAAAT  
ATCACGGAGTACATGTTCTGTGCCGGCTACTCGGATGGCAGCAAGGA  
CTCCTGCAAGGGGGACAGTGGAGGCCACATGCCACCACTACCGGG  
GCACGTGGTACCTGACGGCATCGTCAGCTGGGCCAGGGCTGCGCA  
ACCGTGGGCCACTTGGGGTGTACACCAGGGTCTCCAGTACATCGA  
GTGGCTGCAAAAGCTCATGCGCTCAGAGCCACGCCAGGAGTCCTCC  
TGCAGCCCCATTCCCC

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## FIG. 61B

Met Val Ser Gln Ala Leu Arg Leu Leu Cys Leu Leu Leu Gly Leu Gln Gly Cys  
Leu Ala Ala Val Phe Val Thr Gln Glu Glu Ala His Gly Val Leu His Arg Arg Arg  
Arg Ala Asn Ala Phe Leu Glu Glu Leu Arg Pro Gly Ser Leu Glu Arg Glu Cys  
Lys Glu Glu Gln Cys Ser Phe Glu Glu Ala Arg Glu Ile Phe Lys Asp Ala Glu Arg  
Thr Lys Leu Phe Trp Ile Ser Tyr Ser Asp Gly Asp Gln Cys Ala Ser Ser Pro Cys  
Gln Asn Gly Gly Ser Cys Lys Asp Gln Leu Gln Ser Tyr Ile Cys Phe Cys Leu Pro  
Ala Phe Glu Gly Arg Asn Cys Glu Thr His Lys Asp Asp Gln Leu Ile Cys Val  
Asn Glu Asn Gly Gly Cys Glu Gin Tyr Cys Ser Asp His Thr Gly Thr Lys Arg  
Ser Cys Arg Cys His Glu Gly Tyr Ser Leu Leu Ala Asp Gly Val Ser Cys Thr Pro  
Thr Val Glu Tyr Pro Cys Gly Lys Ile Pro Ile Leu Glu Lys Arg Asn Ala Ser Lys  
Pro Gln Gly Arg Ile Val Gly Gly Lys Val Cys Pro Lys Gly Glu Cys Pro Trp Gln  
Val Leu Leu Leu Val Asn Gly Ala Gln Leu Cys Gly Thr Leu Ile Asn Thr Ile  
Trp Val Val Ser Ala Ala His Cys Phe Asp Lys Ile Lys Asn Trp Arg Asn Leu Ile  
Ala Val Leu Gly Glu His Asp Leu Ser Glu His Asp Gly Asp Glu Gln Ser Arg  
Arg Val Ala Gln Val Ile Ile Pro Ser Thr Tyr Val Pro Gly Thr Thr Asn His Asp  
Ile Ala Leu Leu Arg Leu His Gln Pro Val Val Leu Thr Asp His Val Val Pro Leu  
Cys Leu Pro Glu Arg Thr Phe Ser Glu Arg Thr Leu Ala Phe Val Arg Phe Ser  
Leu Val Ser Gly Trp Gly Gln Leu Leu Asp Arg Gly Ala Thr Ala Leu Glu Leu  
Met Val Leu Asn Val Pro Arg Leu Met Thr Gln Asp Cys Leu Gln Gln Ser Arg  
Lys Val Gly Asp Ser Pro Asn Ile Thr Glu Tyr Met Phe Cys Ala Gly Tyr Ser Asp  
Gly Ser Lys Asp Ser Cys Lys Gly Asp Ser Gly Gly Pro His Ala Thr His Tyr Arg  
Gly Thr Trp Tyr Leu Thr Gly Ile Val Ser Trp Gly Gln Gly Cys Ala Thr Val Gly  
His Phe Gly Val Tyr Thr Arg Val Ser Gln Tyr Ile Glu Trp Leu Gln Lys Leu Met  
Arg Ser Glu Pro Arg Pro Gly Val Leu Arg Ala Pro Phe Pro

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FIG. 62A

ATGCAGCGCGTGAACATGATCATGGCAGAACATACCAAGCCTCATCAC  
CATCTGCCTTTAGGATATCTACTCAGTGTGAATGTACAGTTTCTT  
GATCATGAAAACGCCAACAAAATTCTGAATCGGCCAAAGAGGTATAA  
TTCAGGTAAATTGGAAGAGAGTTGTCAGGGAACCTTGAGAGAGAAT  
GTATGGAAGAAAAGTAGTAGTTGAAGAACCCACGAGAAGTTTGAA  
AACACTGAAAAGACAACGTAACTTTGGAAGCAGTATGTTGATGGAGA  
TCAGTGTGAGTCCAATCCATGTTAAATGGCGGCAGTTGCAAGGATG  
ACATTAATTCTATGAATGTTGGTGTCCCTTGGATTGAAGGAAAGA  
ACTGTGAATTAGATGTAACATGTAACATTAAGAACATGGCAGATGCGAG  
CAGTTTGAAAAATAGTGTGATAACAAAGGTGGTTGCTCCTGTACT  
GAGGGATATCGACTGCAAGAAAACCAGAACAGTCCGTGAACCAGCAGT  
GCCATTCCATGTGGAAGAGTTCTGTTACAAACTCTAAGCTCAC  
CCGTGCTGAGGCTGTTCTGATGTGGACTATGTAACATCATTG  
AGCTGAAACCATTGGATAACATCACTCAAGGCACCCAACTCATTG  
ATGACTTCACTCGGGTGTTGGAGAACATGCCAAACCAGGTCAA  
TTCCTGGCAGGTTGTTGAATGGAAAGTTGATGCATTCTGTGGA  
GGCTCTATCGTTAATGAAAAATGGATTGTAACGTGCTGCCACTGTGTT  
GAAACTGGTGTAAAATTACAGTGTGCAAGGTGAACATAATATTGA  
GGAGACAGAACATACAGAGCAAAAGCGAAATGTGATTGAGCAATT  
ATTCCCTACCACAAACTACAATGCAGCTATTATAAGTACAACCAGTGA  
CATTGCCCTCTGGAACGGACGAACCTAGTGTAAACAGCTACG  
TTACACCTATTGCAATTGCTGACAAGGAATACACGAACATCTCCTCA  
AATTGGATCTGGCTATGTAAGTGGCTGGCAAGAGTCTCCACAAA  
GGGAGATCAGCTTAGTTCTCAGTACCTAGAGTTCCACTGTGAC  
CGAGCCACATGTCTCGATCACAAAGTCAACCCTATAACACAT  
GTTCTGTGCTGGCTTCCATGAAGGAGGTAGAGATTGATGTCAAGGAG  
ATAGTGGGGGACCCATGTTACTGAAGTGGAAAGGGACCAAGTTCTTA  
ACTGGAATTATTAGCTGGGGTGAAGAGTGTGCAATGAAAGGCAAATA  
TGGAAATATACCAAGGTATCCCGTATGTCAACTGGATTAAGGAAA  
AAACAAAGCTCACTTAATGAAAGATGGATTCCAAGGTTAATTCA  
GGAATTGAAAATTAACAG

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## FIG. 62B

Met Gln Arg Val Asn Met Ile Met Ala Glu Ser Pro Ser Leu Ile Thr Ile Cys Leu  
Leu Gly Tyr Leu Leu Ser Ala Glu Cys Thr Val Phe Leu Asp His Glu Asn Ala  
Asn Lys Ile Leu Asn Arg Pro Lys Arg Tyr Asn Ser Gly Lys Leu Glu Glu Phe  
Val Gln Gly Asn Leu Glu Arg Glu Cys Met Glu Glu Lys Cys Ser Phe Glu Glu  
Pro Arg Glu Val Phe Glu Asn Thr Glu Lys Thr Thr Glu Phe Trp Lys Gln Tyr  
Val Asp Gly Asp Gln Cys Glu Ser Asn Pro Cys Leu Asn Gly Gly Ser Cys Lys  
Asp Asp Ile Asn Ser Tyr Glu Cys Trp Cys Pro Phe Gly Phe Glu Gly Lys Asn  
Cys Glu Leu Asp Val Thr Cys Asn Ile Lys Asn Gly Arg Cys Glu Gln Phe Cys  
Lys Asn Ser Ala Asp Asn Lys Val Val Cys Ser Cys Thr Glu Gly Tyr Arg Leu  
Ala Glu Asn Gln Lys Ser Cys Glu Pro Ala Val Pro Phe Pro Cys Gly Arg Val Ser  
Val Ser Gln Thr Ser Lys Leu Thr Arg Ala Glu Ala Val Phe Pro Asp Val Asp Tyr  
Val Asn Pro Thr Glu Ala Glu Thr Ile Leu Asp Asn Ile Thr Gln Gly Thr Gln Ser  
Phe Asn Asp Phe Thr Arg Val Val Gly Glu Asp Ala Lys Pro Gly Gln Phe  
Pro Trp Gln Val Val Leu Asn Gly Lys Val Asp Ala Phe Cys Gly Gly Ser Ile Val  
Asn Glu Lys Trp Ile Val Thr Ala Ala His Cys Val Glu Thr Gly Val Lys Ile Thr  
Val Val Ala Gly Glu His Asn Ile Glu Glu Thr Glu His Thr Glu Gln Lys Arg Asn  
Val Ile Arg Ala Ile Ile Pro His His Asn Tyr Asn Ala Ala Ile Asn Lys Tyr Asn  
His Asp Ile Ala Leu Leu Glu Leu Asp Glu Pro Leu Val Leu Asn Ser Tyr Val Thr  
Pro Ile Cys Ile Ala Asp Lys Glu Tyr Thr Asn Ile Phe Leu Lys Phe Gly Ser Gly  
Tyr Val Ser Gly Trp Ala Arg Val Phe His Lys Gly Arg Ser Ala Leu Val Leu Gln  
Tyr Leu Arg Val Pro Leu Val Asp Arg Ala Thr Cys Leu Arg Ser Thr Lys Phe  
Thr Ile Tyr Asn Asn Met Phe Cys Ala Gly Phe His Glu Gly Gly Arg Asp Ser  
Cys Gln Gly Asp Ser Gly Gly Pro His Val Thr Glu Val Glu Gly Thr Ser Phe Leu  
Thr Gly Ile Ile Ser Trp Gly Glu Glu Cys Ala Met Lys Gly Lys Tyr Gly Ile Tyr  
Thr Lys Val Ser Arg Tyr Val Asn Trp Ile Lys Glu Lys Thr Lys Leu Thr

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FIG. 63A

ATGGATTACTACAGAAAATATGCAGCTATCTTCTGGTCACATTGTCG  
GTGTTCTGCATGTTCTCCATTCCGCTCCTGATGTGCAGGATTGCCCA  
GAATGCACGCTACAGGAAAACCCATTCTCTCCAGCCGGGTGCCCC  
AATACTTCAGTGCATGGGCTGCTGCTCTAGAGCATATCCCACCTCC  
ACTAAAGGTCCAAGAACGACGATGTTGGTCCAAAAGAACGTCACCTCAG  
AGTCCACTTGCTGTAGCTAAATCATATAACAGGGTCACAGTAATG  
GGGGGTTCAAAGTGGAGAACCACACGGCGTGCCACTGCAGTACTTG  
TTATTATCACAAATCTTAAATGTTACCAAGTGCTGTCTGATGACT  
GCTGATTTCTGGAATGGAAAATTAAGTTAGTGTATGGCTT  
GTGAGATAAAACTCTCCTTCTACCCTACCACTTGACACGCTTC  
AAGGATATACTGCAGCTTACTGCCTCCTTATCCTACAGTACAA  
TCAGCAGTCTAGTTCTTCATTGGAATGAATACAGCATTAGCTTG  
TTCCACTGCAAATAAGCCTTAAATCATC

FIG. 63B

Met Asp Tyr Tyr Arg Lys Tyr Ala Ala Ile Phe Leu Val Thr Leu Ser Val Phe Leu  
His Val Leu His Ser Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu  
Asn Pro Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys Phe  
Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu Val Gln Lys Asn  
Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser Tyr Asn Arg Val Thr Val Met  
Gly Gly Phe Lys Val Glu Asn His Thr Ala Cys His Cys Ser Thr Cys Tyr Tyr His  
Lys Ser

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FIG. 63C

ATGAAGACACTCCAGTTTCTTCCTTTCTGTTGCTGGAAAGCAATC  
TGCTGCAATAGCTGTGAGCTGACCAACATCACCATGCAATAGAGAA  
AGAAGAACATGTCGTTCTGCATAAGCATCAACACCACCTGGTGTGCTG  
GCTACTGCTACACCAGGGATCTGGTGTATAAGGACCCAGCCAGGCC  
AAAATCCAGAAAACATGTACCTTCAAGGAACGTGGTATATGAAACAGT  
GAGAGTGCCCCGGCTGTGCTACCATGCAGATTCCCTGTATACATACCC  
AGTGGCCACCCAGTGTCACTGTGGCAAGTGTGACAGCGACAGCACTG  
ATTGTACTGTGCGAGGCCTGGGCCAGCTACTGCTCCTTGGTGAAA  
TGAAAGAATAA

FIG. 63D

Met Lys Thr Leu Gln Phe Phe Leu Phe Cys Cys Trp Lys Ala Ile Cys Cys  
Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu Glu Cys Arg Phe  
Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys Tyr Thr Arg Asp Leu Val  
Tyr Lys Asp Pro Ala Arg Pro Lys Ile Gln Lys Thr Cys Thr Phe Lys Glu Leu Val  
Tyr Glu Thr Val Arg Val Pro Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr  
Pro Val Ala Thr Gln Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys  
Thr Val Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys Glu

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FIG. 64A

CCCGGAGCCGGACCGGGGCACCGCGCCCGCTCTGCTCCGACACCGC  
GCCCGCTGGACAGCCGCCCTCTCCTCCAGGCCCGTGGGCTGGCCCT  
GCACCGCCGAGCTTCCGGATGAGGGCCCCGGTGTGGTCACCCGG  
CGCGCCCCAGGTGCGCTGAGGGACCCGGCAGGCGCGAGATGGGG  
GTGCACGAATGTCCCTGCCTGGCTGTGGCTTCTCCTGTCCCTGCTGTCG  
CTCCCTCTGGGCCTCCCAGTCCTGGCGCCCCACCACGCCTCATCTGT  
GACAGCCGAGTCCTGGAGAGGTACCTCTGGAGGCCAAGGAGGCCG  
AGAATATCACGACGGGCTGTGCTGAACACTGCAGCTGAATGAGAAT  
ATCACTGTCCCAGACACCAAAGTTAATTCTATGCCTGGAAGAGGAT  
GGAGGTCGGCAGCAGGCCGTAGAAGTCTGGCAGGGCCTGGCCCTG  
CTGTCGGAAGCTGTCTGCGGGGCCAGGCCCTGTGGTCAACTCTTCC  
CAGCCGTGGAGGCCCTGCAGCTGATGTGGATAAACGCCGTAGTGG  
CCTTCGCAGCCTCACCACTCTGCTTCGGCTCTGCGAGGCCAGAAGG  
AAGCCATCTCCCCCTCAGATGCGGCCCTCAGCTGCTCCACTCCGAACA  
ATCACTGCTGACACTTCCGAAACTCTTCGAGTCTACTCCAATTTC  
CTCCGGGGAAAGCTGAAGCTGTACACAGGGGAGGCCTGCAGGACAG  
GGGACAGATGACCAGGTGTGTCCACCTGGCATATCCACCACTCC  
TCACCAACATTGCTTGTGCCACACCCCTCCCCGCCACTCCTGAACCCC  
GTCGAGGGCTCTCAGCTCAGCGCCAGCCTGTCCCCTGGACACTCCA  
GTGCCAGCAATGACATCTCAGGGGCCAGAGGAACGTCCAGAGAGC  
AACTCTGAGATCTAAGGATGTCACAGGGCCAATTGAGGGCCCAGAG  
CAGGAAGCATTAGAGAGCAGCTTAAACTCAGGGACAGGCCATG  
CTGGGAAGACGCCCTGAGCTCACTCGGCACCCCTGCAAAATTGATGCC  
AGGACACGCCATTGGAGGCAGTTACCTGTTTCGCACCTACCATCAGG  
GACAGGATGACCTGGAGAACTTAGGTGGCAAGCTGTGACTTCTCCAG  
GTCTCACGGCATGGCACTCCCTGGTGGCAAGAGGCCCTTGACA  
CCGGGGTGGTGGGAACCATGAAGACAGGATGGGGCTGGCCTCTGG  
CTCTCATGGGGCCAAGTTGTGTATTCTAACCTCATTGACAAGA  
ACTGAAACCACCAAAAAAAAAAAAAAA

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## FIG. 64B

Met Gly Val His Glu Cys Pro Ala Trp Leu Trp Leu Leu Ser Leu Leu Ser  
Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu Ile Cys Asp Ser  
Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala Glu Asn Ile Thr Thr  
Gly Cys Ala Glu His Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Thr Lys  
Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val  
Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu  
Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser  
Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Arg Ala Gln Lys Glu Ala Ile  
Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe  
Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly Lys Leu Lys Leu Tyr  
Thr Gly Glu Ala Cys Arg Thr Gly Asp Arg

## FIG. 65

Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg Tyr Leu Leu Glu Ala  
Lys Glu Ala Glu Asn Ile Thr Thr Gly Cys Ala Glu His Cys Ser Leu Asn Glu Asn  
Ile Thr Val Pro Asp Thr Lys Val Asn Phe Tyr Ala Trp Lys Arg Met Glu Val Gly  
Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg  
Gly Gln Ala Leu Leu Val Asn Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val  
Asp Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly  
Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr  
Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Ser Asn Phe Leu Arg Gly  
Lys Leu Lys Leu Tyr Thr Gly Glu Ala Cys Arg Thr Gly Asp

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FIG. 66A

ATGTGGCTGCAGAGCCTGCTGCTTGGGCACTGTGGCCTGCAGCAT  
CTCTGCACCCGCCGCTCGCCCAGCCCCAGCACGCAGCCCTGGGAGC  
ATGTGAATGCCATCCAGGAGGCCGGCGTCTCTGAACCTGAGTAGA  
GACACTGCTGCTGAGATGAATGAAACAGTAGAACAGTCATCTCAGAAAT  
GTTTGACCTCCAGGAGCCGACCTGCCTACAGACCCGCCTGGAGCTGT  
ACAAGCAGGGCCTGCAGGGCAGCCTCACCAAGCTCAAGGGCCCTTG  
ACCATGATGCCAGCCACTACAAGCAGCACTGCCCTCCAACCCCGA  
AACTTCCTGTGCAACCCAGATTATCACCTTGAAAGTTCAAAGAGA  
ACCTGAAGGACTTTCTGCTTGTCACTCCCTTGACTGCTGGAGCCAG  
TCCAGGAGTGA

FIG. 66B

Met Trp Leu Gln Ser Leu Leu Leu Leu Gly Thr Val Ala Cys Ser Ile Ser Ala Pro  
Ala Arg Ser Pro Ser Pro Ser Thr Gln Pro Trp Glu His Val Asn Ala Ile Gln Glu  
Ala Arg Arg Leu Leu Asn Leu Ser Arg Asp Thr Ala Ala Glu Met Asn Glu Thr  
Val Glu Val Ile Ser Glu Met Phe Asp Leu Gln Glu Pro Thr Cys Leu Gln Thr Arg  
Leu Glu Leu Tyr Lys Gln Gly Leu Arg Gly Ser Leu Thr Lys Leu Lys Gly Pro  
Leu Thr Met Met Ala Ser His Tyr Lys Gln His Cys Pro Pro Thr Pro Glu Thr Ser  
Cys Ala Thr Gln Ile Ile Thr Phe Glu Ser Phe Lys Glu Asn Leu Lys Asp Phe Leu  
Leu Val Ile Pro Phe Asp Cys Trp Glu Pro Val Gln Glu

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FIG. 67A

ATGAAATATAACAAGTTATATCTTGGCTTTCAGCTCTGCATCGTTTG  
GGTTCTCTTGGCTGTTACTGCCAGGACCCATATGTAAAAGAACAGA  
AAACCTTAAGAAAATATTTAATGCAGGTCAATTAGCAGATGTAGCGGATA  
ATGGAACCTTTCTTAGGCATTTGAAGAATTGGAAAGAGAGGAGAGT  
GACAGAAAAATAATGCAGAGCAAATTGTCTCCTTACTTCAAACCT  
TTTAAAAACTTAAAGATGACCAGAGCATCCAAAAGAGTGTGGAGA  
CCATCAAGGAAGACATGAATGTCAAGTTTCAATAGCAACAAAAG  
AAACGAGATGACTTCGAAAAGCTGACTAATTATTCGGTAACTGACTT  
GAATGTCCAACGCAAAGCAATACATGAACATCCAAGTGTGGCTG  
AACTGTCGCCAGCAGCTAAAACAGGGAAAGCGAAAAAGGAGTCAGAT  
GCTTTCGAGGTCGAAGAGCATCCCAGTAA

FIG. 67B

Met Lys Tyr Thr Ser Tyr Ile Leu Ala Phe Gln Leu Cys Ile Val Leu Gly Ser Leu  
Gly Cys Tyr Cys Gln Asp Pro Tyr Val Lys Glu Ala Glu Asn Leu Lys Lys Tyr  
Phe Asn Ala Gly His Ser Asp Val Ala Asp Asn Gly Thr Leu Phe Leu Gly Ile  
Leu Lys Asn Trp Lys Glu Glu Ser Asp Arg Lys Ile Met Gln Ser Gln Ile Val Ser  
Phe Tyr Phe Lys Leu Phe Lys Asn Phe Lys Asp Asp Gln Ser Ile Gln Lys Ser Val  
Glu Thr Ile Lys Glu Asp Met Asn Val Lys Phe Phe Asn Ser Asn Lys Lys Lys  
Arg Asp Asp Phe Glu Lys Leu Thr Asn Tyr Ser Val Thr Asp Leu Asn Val Gln  
Arg Lys Ala Ile His Glu Leu Ile Gln Val Met Ala Glu Leu Ser Pro Ala Ala Lys  
Thr Gly Lys Arg Lys Arg Ser Gln Met Leu Phe Arg Gly Arg Arg Ala Ser Gln

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FIG. 68A

CTGGGACAGTGAATCGACAATGCCGTCTGTCTCGTGGGGCATCCT  
CCTGCTGGCAGGCCTGTGCTGCCTGGTCTCCCTGGCTGAGGA  
TCCCCAGGGAGATGCTGCCAGAACAGACAGATACTCCCACCATGATC  
AGGATCACCCAACCTCAACAAGATCACCCCCAACCTGGCTGAGTTC  
GCCTCAGCCTATACCGCCAGCTGGCACACCAGTCCAACAGCACCAA  
TATCTTCTTCTCCCCAGTGAGCATCGCTACAGCCTTGCAATGCTCTC  
CCTGGGGACCAAGGCTGACACTCACGATGAAATCCTGGAGGGCCTGA  
ATTCAACCTCACGGAGATTCCGGAGGCTCAGATCCATGAAGGCTTC  
CAGGAACCTCCCGTACCCCTCAACCAGCCAGACAGCCAGCTCCAGCT  
GACCACCGGCAATGCCCTGTTCCCTAGCGAGGGCTGAAGCTAGTGG  
ATAAGTTTTGGAGGATGTTAAAAGTTGTACCACTCAGAACGCCTTC  
ACTGTCAACTCGGGGACACCGAAGAGGCAAGAACAGATCAACG  
ATTACGTGGAGAAGGGTACTCAAGGGAAAATTGTGGATTGGTCAAG  
GAGCTTGACAGAGACACAGTTTGCTCTGGTAATTACATCTTCTT  
AAAGGCAAATGGGAGAGACCCCTTGAAGTCAAGGACACCGAGGAAG  
AGGACTTCCACGTGGACCAGGTGACCACCGTGAAGGTGCCTATGATG  
AAGCGTTAGGCATGTTAACATCCAGCACTGTAAGAACGCTGTCCAG  
CTGGGTGCTGCTGATGAAATACCTGGCAATGCCACCGCCATCTTCT  
TCCTGCCTGATGAGGGAAACTACAGCACCTGGAAAATGAACCTCACC  
CACGATATCATCACCAAGTCCCTGGAAAATGAAGACAGAACGGCTGC  
CAGCTTACATTACCCAAACTGTCCATTACTGGAACCTATGATCTGAA  
GAGCGCTCTGGGTCAACTGGCATCACTAAGGTCTTCAGCAATGGGG  
CTGACCTCTCCGGGGTCACAGAGGAGGCACCCCTGAAGCTCTCCAAG  
GCCGTGCATAAGGCTGTGCTGACCATCGACGAGAAAGGGACTGAAGC  
TGCTGGGCCATGTTTAGAGGCCATACCCATGCTATCCCCCCCAGA  
GGTCAAGTTCAACAAACCCCTTGTCTTCTTAATGATTGAACAAATAC  
CAAGTCTCCCTCTCATGGAAAAGTGGTGAATCCCACCCAAAAAT  
AACTGCCTCTCGCTCCTCAACCCCTCCATCCCTGGCCCCCTCC  
CTGGATGACATTAAAGAAGGGTTGAGCTGG

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## FIG. 68B

Met Pro Ser Ser Val Ser Trp Gly Ile Leu Leu Leu Ala Gly Leu Cys Cys Leu Val Pro Val Ser Leu Ala Glu Asp Pro Gln Gly Asp Ala Ala Gln Lys Thr Asp Thr Ser His His Asp Gln Asp His Pro Thr Phe Asn Lys Ile Thr Pro Asn Leu Ala Glu Phe Ala Phe Ser Leu Tyr Arg Gln Leu Ala His Gln Ser Asn Ser Thr Asn Ile Phe Phe Ser Pro Val Ser Ile Ala Thr Ala Phe Ala Met Leu Ser Leu Gly Thr Lys Ala Asp Thr His Asp Glu Ile Leu Glu Gly Leu Asn Phe Asn Leu Thr Glu Ile Pro Glu Ala Gln Ile His Glu Gly Phe Gln Glu Leu Leu Arg Thr Leu Asn Gln Pro Asp Ser Gln Leu Gln Leu Thr Thr Gly Asn Gly Leu Phe Leu Ser Glu Gly Leu Lys Leu Val Asp Lys Phe Leu Glu Asp Val Lys Lys Leu Tyr His Ser Glu Ala Phe Thr Val Asn Phe Gly Asp Thr Glu Glu Ala Lys Lys Gln Ile Asn Asp Tyr Val Glu Lys Gly Thr Gln Gly Lys Ile Val Asp Leu Val Lys Glu Leu Asp Arg Asp Thr Val Phe Ala Leu Val Asn Tyr Ile Phe Phe Lys Gly Lys Trp Glu Arg Pro Phe Glu Val Lys Asp Thr Glu Glu Asp Phe His Val Asp Gln Val Thr Thr Val Lys Val Pro Met Met Lys Arg Leu Gly Met Phe Asn Ile Gln His Cys Lys Lys Leu Ser Ser Trp Val Leu Leu Met Lys Tyr Leu Gly Asn Ala Thr Ala Ile Phe Phe Leu Pro Asp Glu Gly Lys Leu Gln His Leu Glu Asn Glu Leu Thr His Asp Ile Ile Thr Lys Phe Leu Glu Asn Glu Asp Arg Arg Ser Ala Ser Leu His Leu Pro Lys Leu Ser Ile Thr Gly Thr Tyr Asp Leu Lys Ser Val Leu Gly Gln Leu Gly Ile Thr Lys Val Phe Ser Asn Gly Ala Asp Leu Ser Gly Val Thr Glu Glu Ala Pro Leu Lys Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp Glu Lys Gly Thr Glu Ala Ala Gly Ala Met Phe Leu Glu Ala Ile Pro Met Ser Ile Pro Pro Glu Val Lys Phe Asn Lys Pro Phe Val Phe Leu Met Ile Glu Gln Asn Thr Lys Ser Pro Leu Phe Met Gly Lys Val Val Asn Pro Thr Gln Lys

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FIG. 69A-1

GCTAACCTAGTGCCTATAGCTAAGGCAGGTACCTGCATCCTTGTTTT  
GTTTAGTGGATCCTCTATCCTTCAGAGACTCTGGAACCCCTGTGGTCT  
TCTCTTCATCTAATGACCCCTGAGGGATGGAGTTCAAGTCCTTCCA  
GAGAGGAATGTCCAAGCCTTGAGTAGGTAAGCATCATGGCTGGC  
AGCCTCACAGGTTGCTCTACTTCAGGCAGTGTCTGGCATCAGGT  
GCCCGCCCCCTGCATCCCTAAAAGCTCGGCTACAGCTCGGTGGTGTGT  
GTCTGCAATGCCACATACTGTGACTCCTTGACCCCCCGACCTTCC  
GCCCTGGTACCTCAGCCGTATGAGAGTACACGCAGTGGCGACG  
GATGGAGCTGAGTATGGGGCCATCCAGGCTAATCACACGGGCACAG  
GCCTGCTACTGACCCCTGCAGCCAGAACAGAAAGTCCAGAAAGTGAAG  
GGATTGGAGGGGCCATGACAGATGCTGCTCAACATCCTTGCC  
CTGTCACCCCTGCCAAAATTGCTACTTAAATCGTACTTCTTGAA  
GAAGGAATCGGATATAACATCATCCGGTACCCATGGCCAGCTGTGA  
CTTCTCCATCCGCACCTACACCTATGCAGACACCCCTGATGATTCCA  
GTTGCACAACATTCAAGCCTCCCAGAGGAAGATACCAAGCTCAAGATAC  
CCCTGATTCAACGAGCCCTGCAGTTGGCCCAGCGTCCCCTTCACTCC  
TTGCCAGCCCCGGACATCACCCACTTGGCTCAAGACCAATGGAGCG  
GTGAATGGGAAGGGTCACTCAAGGGACAGCCGGAGACATCTACC  
ACCAGACCTGGGCCAGATACTTGTGAAGTCCCTGGATGCCATGCTG  
AGCACAAGTTACAGTTCTGGCAGTGACAGCTGAAAATGAGCCTTCT  
GCTGGCTGTGAGTGGATACCCCTCCAGTGCCTGGCTTCAACCCCT  
GAACATCAGCGAGACTTCATTGCCGTGACCTAGGTCTTACCCCTCGCC  
AACAGTACTACCACAATGTCCGCCTACTCATGCTGGATGACCAACGC  
TTGCTGCTGCCCACTGGCAAAGGTGGTACTGACAGACCCAGAACG  
AGCTAAATATGTTCATGGCATTGCTGTACATTGGTACCTGGACTTCT  
GGCTCCAGCCAAAGCCACCTAGGGGAGACACACCGCCTGTTCCCCA  
ACACCATGCTCTTGCCTCAGAGGCCTGTGAGGGCTCCAAGTTCTGGG  
AGCAGAGTGTGCGGCTAGGCTCTGGATCGAGGGATGCAGTACAGC  
CACAGCATCATCAGAACCTCCTGTACCATGTGGTCGGCTGGACCGAC  
TGGAACCTGCCCTGAACCCGAAGGAGGACCCATTGGGTGCGTAA  
CTTGTCGACAGTCCCATATTGTAGACATCACCAAGGACACGTTTA  
CAAACAGCCCATGTTCTACCACCTGGCCACTCAGCAAGTTCATTC  
TGAGGGCTCCCAGAGAGTGGGCTGGTGCAGTCAGAAGAACGACC  
TGGACGCAGTGGCACTGATGCATCCGATGGCTCTGCTGTTGTGGTCG  
TGCTAAACCGCTCCTCTAAGGAATGTGCCTCTTACCATCAAGGATCCTG  
CTGTGGCTTCCGGAGACAATCTCACCTGGCTACTCCATTACACACT  
ACCTGTGGCATGCCAGTGTGGAGCAGATACTCAAGGAGGACTGG  
GCTCAGCCTGGCATTAAAGGGACAGAGTCAGCTCACACGCTGTCTG  
TGACTAAAGAGGGCACAGCAGGGCAGTGTGAGCTTACAGCGACGT

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FIG. 69A-2

AAGCCCAGGGGCAATGGTTGGGTGACTCACTTCCCCCTAGGTGGT  
GCCAGGGCTGGAGGCCCTAGAAAAAGATCAGTAAGCCCCAGTGTC  
CCCCCAGCCCCCATGCTTATGTGAACATGCGCTGTGCTGCTTGCCT  
TGGAAACT

FIG. 69B

Met Glu Phe Ser Ser Pro Ser Arg Glu Glu Cys Pro Lys Pro Leu Ser Arg Val Ser  
Ile Met Ala Gly Ser Leu Thr Gly Leu Leu Leu Gln Ala Val Ser Trp Ala Ser  
Gly Ala Arg Pro Cys Ile Pro Lys Ser Phe Gly Tyr Ser Ser Val Val Cys Val Cys  
Asn Ala Thr Tyr Cys Asp Ser Phe Asp Pro Pro Thr Phe Pro Ala Leu Gly Thr  
Phe Ser Arg Tyr Glu Ser Thr Arg Ser Gly Arg Arg Met Glu Leu Ser Met Gly  
Pro Ile Gln Ala Asn His Thr Gly Thr Gly Leu Leu Leu Thr Leu Gln Pro Glu Gln  
Lys Phe Gln Lys Val Lys Gly Phe Gly Gly Ala Met Thr Asp Ala Ala Ala Leu  
Asn Ile Leu Ala Leu Ser Pro Pro Ala Gln Asn Leu Leu Lys Ser Tyr Phe Ser  
Glu Glu Gly Ile Gly Tyr Asn Ile Ile Arg Val Pro Met Ala Ser Cys Asp Phe Ser  
Ile Arg Thr Tyr Thr Ala Asp Thr Pro Asp Asp Phe Gln Leu His Asn Phe Ser  
Leu Pro Glu Glu Asp Thr Lys Leu Lys Ile Pro Leu Ile His Arg Ala Leu Gln Leu  
Ala Gln Arg Pro Val Ser Leu Leu Ala Ser Pro Trp Thr Ser Pro Thr Trp Leu Lys  
Thr Asn Gly Ala Val Asn Gly Lys Ser Leu Lys Gly Gln Pro Gly Asp Ile  
Tyr His Gln Thr Trp Ala Arg Tyr Phe Val Lys Phe Leu Asp Ala Tyr Ala Glu  
His Lys Leu Gln Phe Trp Ala Val Thr Ala Glu Asn Glu Pro Ser Ala Gly Leu  
Leu Ser Gly Tyr Pro Phe Gln Cys Leu Gly Phe Thr Pro Glu His Gln Arg Asp  
Phe Ile Ala Arg Asp Leu Gly Pro Thr Leu Ala Asn Ser Thr His His Asn Val Arg  
Leu Leu Met Leu Asp Asp Gln Arg Leu Leu Pro His Trp Ala Lys Val Val  
Leu Thr Asp Pro Glu Ala Ala Lys Tyr Val His Gly Ile Ala Val His Trp Tyr Leu  
Asp Phe Leu Ala Pro Ala Lys Ala Thr Leu Gly Glu Thr His Arg Leu Phe Pro  
Asn Thr Met Leu Phe Ala Ser Glu Ala Cys Val Gly Ser Lys Phe Trp Glu Gln Ser  
Val Arg Leu Gly Ser Trp Asp Arg Gly Met Gln Tyr Ser His Ser Ile Ile Thr Asn  
Leu Leu Tyr His Val Val Gly Trp Thr Asp Trp Asn Leu Ala Leu Asn Pro Glu  
Gly Gly Pro Asn Trp Val Arg Asn Phe Val Asp Ser Pro Ile Ile Val Asp Ile Thr  
Lys Asp Thr Phe Tyr Lys Gln Pro Met Phe Tyr His Leu Gly His Phe Ser Lys  
Phe Ile Pro Glu Gly Ser Gln Arg Val Gly Leu Val Ala Ser Gln Lys Asn Asp Leu  
Asp Ala Val Ala Leu Met His Pro Asp Gly Ser Ala Val Val Val Leu Asn  
Arg Ser Ser Lys Asp Val Pro Leu Thr Ile Lys Asp Pro Ala Val Gly Phe Leu Glu  
Thr Ile Ser Pro Gly Tyr Ser Ile His Thr Tyr Leu Trp His Arg Gln

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FIG. 70A

ATGGATGCAATGAAGAGAGGGCTGCTGTGCTGCTGCTGTGG  
AGCAGTCTCGTTGCCAGCCAGGAAATCCATGCCGATTAGAA  
GAGGAGCCAGATCTAACAGTACTGCAGAGATGAAAAACGCA  
GATGATATACCAGCAACATCAGTCATGGCTGCCCTGTGCTCAGAA  
GCAACCGGGTGGAAATTGCTGGTGCAACAGTGGCAGGGCACAGTGC  
CACTCAGTGCCTGTCAAAAGTTGCAGCGAGCCAAGGTGTTAACCG  
GGGCACCTGCCAGCAGGCCCTGTACTTCTCAGATTCTGTGCCAGTG  
CCCCGAAGGATTGCTGGGAAGTGCTGTGAAATAGATAACCAGGCCA  
CGTGCTACGAGGACCAGGGCATCAGCTACAGGGCACGTGGAGCAC  
AGCGGAGAGTGGCGCCGAGTGCACCAACTGGAACAGCAGCGCGTTG  
GCCAGAAGCCCTACAGCGGGCGGAGGCCAGACGCCATCAGGCTGG  
GCCTGGGAACCACAACACTGCAGAAACCCAGATCGAGACTCAA  
GCCCTGGTGCTACGTCTTAAGGCAGGGAAAGTACAGCTCAGAGTTCT  
GCAGCACCCCTGCCTGCTCTGAGGGAAACAGTGAUTGCTACTTTGG  
AATGGGTCACTACCGTGGCACGCACAGCCTACCGAGTCGGTGC  
CTCCTGCCTCCGTGGAATTCCATGATCCTGATAGGCAAGGTTACAC  
AGCACAGAACCCCAGTGCCAGGCACTGGCCTGGCAAACATAATT  
ACTGCCGAATCCTGATGGGGATGCCAAGCCCTGGTGCACGTGCTG  
AAGAACCGCAGGCTGACGTGGAGTACTGTGATGTGCCCTCTGCTC  
CACCTGCGGCCTGAGACAGTACAGCCAGCCTCAGTTCGCATCAAAG  
GAGGGCTTCGCCGACATGCCCTCCCACCCCTGGCAGGCTGCCATCT  
TTGCCAAGCACAGGAGGTGCCAGGAGAGCGGTTCTGTGCGGGGGC  
ATACTCATCAGCTCTGCTGGATTCTCTGCCGCCACTGCTTCCAG  
GAGAGGTTCCGCCACCAACCTGACGGTGATCTGGCAGAACATA  
CCGGGTGGTCCCTGGCGAGGAGGAGCAGAAATTGAAGTCGAAAAAA  
TACATTGTCCATAAGGAATTGATGATGACACTTACGACAATGACAT  
TGCCTGCTGCAGCTGAAATCGGATTCTGCCCTGGCTGTGCCAGGAGA  
GCAGCGTGGCCGCACTGTGCTGCCCTCCCCGGCGGACCTGCAGCTG  
CCGGACTGGACGGAGTGTGAGCTCTCCGGCTACGGCAAGCATGAGGC  
CTTGTCTCCTTCTATTGGAGCGGCTGAAGGAGGCTATGTCAGACT  
GTACCCATCCAGCCGCTGCACATCACACATTACTAACAGAACAG  
TCACCGACAACATGCTGTGCTGGAGACACTCGGAGCGGGCGGGCCC  
CAGGCAAACCTGCACGACGCCAGGGCGATTGGGAGGCCCCCT  
GGTGTGCTGAACGATGGCCGATGACTTGGTGGCATCATCAGCT  
GGGCCTGGCTGGACAGAAGGATGTCCCAGGGTGTACACCAAG  
GTTACCAACTACCTAGACTGGATTGTCGACAACATGCGACCGTGACC  
AGGAACACCCGACTCCTAAAAGCAAATGAGATCC

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## FIG. 70B

Met Asp Ala Met Lys Arg Gly Leu Cys Cys Val Leu Leu Leu Cys Gly Ala Val Phe Val Ser Pro Ser Gln Glu Ile His Ala Arg Phe Arg Arg Gly Ala Arg Ser Tyr Gln Val Ile Cys Arg Asp Glu Lys Thr Gln Met Ile Tyr Gln Gln His Gln Ser Trp Leu Arg Pro Val Leu Arg Ser Asn Arg Val Glu Tyr Cys Trp Cys Asn Ser Gly Arg Ala Gln Cys His Ser Val Pro Val Lys Ser Cys Ser Glu Pro Arg Cys Phe Asn Gly Gly Thr Cys Gln Gln Ala Leu Tyr Phe Ser Asp Phe Val Cys Gln Cys Pro Glu Gly Phe Ala Gly Lys Cys Cys Glu Ile Asp Thr Arg Ala Thr Cys Tyr Glu Asp Gln Gly Ile Ser Tyr Arg Gly Thr Trp Ser Thr Ala Glu Ser Gly Ala Glu Cys Thr Asn Trp Asn Ser Ser Ala Leu Ala Gln Lys Pro Tyr Ser Gly Arg Arg Pro Asp Ala Ile Arg Leu Gly Leu Gly Asn His Asn Tyr Cys Arg Asn Pro Asp Arg Asp Ser Lys Pro Trp Cys Tyr Val Phe Lys Ala Gly Lys Tyr Ser Ser Glu Phe Cys Ser Thr Pro Ala Cys Ser Glu Gly Asn Ser Asp Cys Tyr Phe Gly Asn Gly Ser Ala Tyr Arg Gly Thr His Ser Leu Thr Glu Ser Gly Ala Ser Cys Leu Pro Trp Asn Ser Met Ile Leu Ile Gly Lys Val Tyr Thr Ala Gln Asn Pro Ser Ala Gln Ala Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Gly Asp Ala Lys Pro Trp Cys His Val Leu Lys Asn Arg Arg Leu Thr Trp Glu Tyr Cys Asp Val Pro Ser Cys Ser Thr Cys Gly Leu Arg Gln Tyr Ser Gln Pro Gln Phe Arg Ile Lys Gly Gly Leu Phe Ala Asp Ile Ala Ser His Pro Trp Gln Ala Ala Ile Phe Ala Lys His Arg Arg Ser Pro Gly Glu Arg Phe Leu Cys Gly Gly Ile Leu Ile Ser Ser Cys Trp Ile Leu Ser Ala Ala His Cys Phe Gln Glu Arg Phe Pro Pro His His Leu Thr Val Ile Leu Gly Arg Thr Tyr Arg Val Val Pro Gly Glu Glu Gln Lys Phe Glu Val Glu Lys Tyr Ile Val His Lys Glu Phe Asp Asp Asp Thr Tyr Asp Asn Asp Ile Ala Leu Leu Gln Leu Lys Ser Asp Ser Ser Arg Cys Ala Gln Glu Ser Ser Val Val Arg Thr Val Cys Leu Pro Pro Ala Asp Leu Gln Leu Pro Asp Trp Thr Glu Cys Glu Leu Ser Gly Tyr Gly Lys His Glu Ala Leu Ser Pro Phe Tyr Ser Glu Arg Leu Lys Glu Ala His Val Arg Leu Tyr Pro Ser Ser Arg Cys Thr Ser Gln His Leu Leu Asn Arg Thr Val Thr Asp Asn Met Leu Cys Ala Gly Asp Thr Arg Ser Gly Gly Pro Gln Ala Asn Leu His Asp Ala Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Leu Asn Asp Gly Arg Met Thr Leu Val Gly Ile Ile Ser Trp Gly Leu Gly Cys Gly Gln Lys Asp Val Pro Gly Val Tyr Thr Lys Val Thr Asn Tyr Leu Asp Trp Ile Arg Asp Asn Met Arg Pro

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FIG. 71A

ATCACTCTTTAACACTCACATTAAACCTCAACTCCTGCCACAA  
TGTACAGGATGCAACTCCTGCTTGCACTAATTCTGCACCTG  
TCACAAACAGTCACCTACTCAAGTCGACAAAGAAAACAAAGAAA  
ACACAGCTACAACGGAGCATTTACTGCTGGATTACAGATGATTG  
AATGGAATTATAATTACAAGAATCCAAACTCACCGAGATGCTCAC  
ATTTAAGTTTACATGCCAAGAAGGCCACAGAACTGAAACAGCTTC  
AGTGTCTAGAAGAAGAACTCAAACCTCTGGAGGAAGTGCTGAATT  
GCTCAAAGCAAAACTTCACTTAACGACCCAGGGACTTAATCAGCAA  
TATCAACGTAATAGTCTGGAACCTAAAGGGATCTGAAACAACTCA  
TGTGTGAATATGCAGATGAGACAGCAACCATTGTAGAATTCTGAAC  
AGATGGATTACCTTGTCAAAGCATCATCTAACACTAACTTGATAA  
TTAAGTGCTTCCCACCTAAAACATATCAGGCCTCTATTATTATT  
AATATTAAATTATTTATTGTTGAATGTATGGTTGCTACCTATTG  
TAACTATTATTCTTAATCTAAAACATAAATATGGATCTTTATGAT  
TCTTTTGTAAGCCCTAGGGCTCTAAAATGGTTACCTTATTATCC  
CAAAATATTATTATTATGTTGAATGTTAAATATAGTATCTATGTAG  
ATTGGTTAGTAAAACATTAAATAATTGATAAAATATAAAAAAAA  
AAACAAAAAA

FIG. 71B

Met Tyr Arg Met Gln Leu Leu Ser Cys Ile Ala Leu Ala Leu Val Thr Asn  
Ser Ala Pro Thr Ser Ser Ser Thr Lys Lys Thr Lys Lys Thr Gln Leu Gln Leu Glu  
His Leu Leu Leu Asp Leu Gln Met Ile Leu Asn Gly Ile Asn Asn Tyr Lys Asn  
Pro Lys Leu Thr Arg Met Leu Thr Phe Lys Phe Tyr Met Pro Lys Lys Ala Thr  
Glu Leu Lys Gln Leu Gln Cys Leu Glu Glu Leu Lys Pro Leu Glu Glu Val  
Leu Asn Leu Ala Gln Ser Lys Asn Phe His Leu Arg Pro Arg Asp Leu Ile Ser  
Asn Ile Asn Val Ile Val Leu Glu Leu Lys Gly Ser Glu Thr Thr Phe Met Cys Glu  
Tyr Ala Asp Glu Thr Ala Thr Ile Val Glu Phe Leu Asn Arg Trp Ile Thr Phe Cys  
Gln Ser Ile Ile Ser Thr Leu Thr

## FIG. 72A-1 298/497

ATGCAAATAGAGCTCTCCACCTGCTCTTCTGTGCCCTTGCGATTCT  
GCTTAGTGCCACCAGAAGATACTACCTGGGTGCAGTGGAACTGTCA  
TGGGACTATATGCAAAGTGATCTCGGTGAGCTGCCTGTGGACGCAAG  
ATTCCTCCTAGAGTGCACAAATCTTCCATTCAACACACCTCAGTCGT  
GTACAAAAAGACTCTGTTGAGAATTACCGGATCACCTTTCAACAT  
CGCTAACGCCAGGCCACCTGGATGGTCTGCTAGGTCCCTACCATCC  
AGGCTGAGGTTATGATACAGTGGTCATTACACTTAAGAACATGGCT  
TCCCATCCTGTCAGTCTCATGCTGTTGGTGTACTCTACTGGAAAGCT  
TCTGAGGGAGCTGAATATGATGATCAGACCAGTCAAAGGGAGAAAG  
AAGATGATAAAGCTTCCCTGGTGGAAAGCCATACATATGTCGGCAG  
GTCCTGAAAGAGAATGGTCCAATGCCCTGACCCACTGTGCCTTAC  
CTACTCATATCTTCTCATGTCAGCTGGTAAAAGACTTGAATTCAAGG  
CCTCATTGGAGCCCTACTAGTATGTAGAGAACGGAGTCTGGCCAAGG  
AAAAGACACAGACCTTGACAAAATTATACTACTTTGCTGTATTG  
ATGAAGGGAAAAGTGGCACTCAGAAACAAAGAACCTTGTATGCA  
GGATAGGGATGCTGCATCTGCTCGGGCCTGGCTAAAATGCACACAG  
TCAATGGTTATGTAACAGGTCTGCCCCCTGGCTGATTGGATGCCACA  
GGAAATCAGTCTATTGGCATGTGATTGGAAATGGCACCACTCCTGAA  
GTGCACTCAATATTCCCTGAAGGTACACATTTCTGTGAGGAACCAT  
GCCAGGCGTCCTGGAAATCTGCCAATAACTTCCCTACTGCTCAA  
ACACTCTTGATGGACCTTGGACAGTTCTACTGTTGTATCTT  
CCCACCAACATGATGGCATGGAAGCTTATGTCAAAGTAGACAGCTGT  
CCAGAGGAACCCCAACTACGAATGAAAAATAATGAAGAACGGAAAG  
ACTATGATGATGATCTTACTGATTCTGAAATGGATGTGGTCAGGTTG  
ATGATGACAACCTCCTCCCTTATCCAAATTGCTCAGTGCCAAAGA  
AGCATCCTAAAACCTGGTACATTACATTGCTGCTGAAGAGGAGGAC  
TGGGACTATGCTCCCTAGTCCTCGCCCCGATGACAGAACGTTATAAA  
AGTCAATATTGAACAATGCCCTCAGCGGATTGGTAGGAAGTACAA  
AAAAGTCCGATTATGGCATACACAGATGAAACCTTAAAGACTCGTG  
AAGCTATTCACTGATGAATCAGGAATCTTGGACCTTACTTTATGGG  
AAGTGGAGACACACTGTTGATTATTAAAGAATCAAGCAAGCAGA  
CCATATAACATCTACCCCTACGGAATCACTGATGTCGCTTGTAT  
TCAAGGAGATTACCAAAAGGTGAAACATTTGAAGGATTTCCTAAT  
TCTGCCAGGAGAAATATTCAAATATAATGGACAGTGACTGTAGAAG  
ATGGGCCAACTAAATCAGATCCTCGGTGCCTGACCCGCTTACTCTA  
GTTCGTTAATATGGAGAGAGATCTAGCTCAGGACTCATTGGCCCTC  
TCCTCATCTGCTACAAAGAATCTGTAGATCAAAGAGGAAACCAAGATA  
ATGTCAGACAAGAGGAATGTCATCCTGTTCTGTATTGATGAGAAC  
CGAAGCTGGTACCTCACAGAGAATATAACACGCTTCTCCCCAATCCA  
GCTGGAGTGAGCTGAGGATCCAGAGTCCAAAGCCTCCAACATCAT  
GCACAGCATCAATGGCTATGTTGATAGTTGCAGTTGTCAGTTG  
TTTGCATGAGGTGGCATACTGGTACATTCTAAGCATTGGAGCACAGA  
CTGACTCCTTCTGTCTCTGGATATACCTCAAAACACACAAAT

## FIG. 72A-2 299/497

GGTCTATGAAGACACACTCACCTATTCCCATTCTCAGGAGAAACTGT  
CTTCATGTCGATGGAAAACCCAGGTCTATGGATTCTGGGGTGCCACA  
ACTCAGACTTCGGAACAGAGGCATGACCGCCTTACTIONGAAGGTTCT  
AGTTGTGACAAGAACACTGGTATTACGAGGACAGTTATGAAGA  
TATTCAGCATACTTGCTGAGTAAAAACAATGCCATTGAACCAAGAA  
GCTTCTCCCAGAATTCAAGACACCCTAGCACTAGGCAAAAGCAATT  
AATGCCACCAATTCCAGAAAATGACATAGAGAAGACTGACCCCTG  
GTTGCACACAGAACACCTATGCCTAAAATACAAAATGTCTCCTCTA  
GTGATTGTTGATGCTCTGCGACAGACTCCTACTCCACATGGGCTAT  
CCTTATCTGATCTCCAAGAACCAAATATGAGACTTTCTGATGATC  
CATCACCTGGAGCAATAGACAGTAATAACAGCCTGTCTGAAATGACA  
CACTCAGGCCACAGCTCCATCACAGTGGGGACATGGTATTACCCC  
TGAGTCAGGCCTCCAATTAAAGATTAAATGAGAAAATGGGACAATG  
CAGCAACAGAGTTGAAGAAACTTGATTCAAAGTTCTAGTACATCA  
AATAATCTGATTCAACAATTCCATCAGACAATTGGCAGCAGGTACT  
GATAATACAAGTCCTTAGGACCCCCAAGTATGCCAGTTCAATTGAT  
AGTCAATTAGATACCACTCTATTGGCAAAAAGTCATCTCCCTACT  
GAGTCTGGTGGACCTCTGAGCTTGAGTGAAGAAAATAATGATTCAA  
GTTGTTAGAATCAGGTTAATGAATAGCCAAGAAAGTTCATGGGAA  
AAAATGTATCGTCAACAGAGAGTGGTAGGTTATTAAAGGGAAAAGA  
GCTCATGGACCTGCTTGTGACTAAAGATAATGCCATTCAAAAGTT  
AGCATTCTTGTAAAGACAAACAAAATCCTAAATTCAGCAACT  
AATAGAAAGACTCACATTGATGGCCCCTCATTATTAAATTGAGAATAG  
TCCATCAGTCTGGCAAAATATATTAGAAAGTGAACTGAGTTAAA  
AAGTGACACCTTGATTGATGACAGAAATGCTTATGGACAAAATGCT  
ACAGCTTGAGGCTAAATCATATGTCAAATAAAACACTTCATCAAA  
AAACATGGAAATGGCCAACAGAAAAAGAGGGCCCCATTCCACCA  
GATGCACAAAATCCAGATATGCTTCTTAAGATGCTTCTGCCA  
GAATCAGCAAGGTGGATACAAAGGACTCATGGAAAGAAACTCTGAA  
CTCTGGCAAGGCCAGTCCAAAGCAATTAGTATCCTTAGGACCAG  
AAAAATCTGTGGAAAGGTAGAATTCTGTGAGAAAAACAAAGTG  
GTAGTAGGAAAGGGTGAATTACAAAGGACGTAGGACTCAAAGAGA  
TGGTTTCTCAAGCAGCAGAAACCTATTCTACTAATTGGATAATT  
TACATGAAAATAATACACACAATCAAGAAAAAAATTCAAGGAAGA  
AATAGAAAAGAAGGAAACATTAATCCAAGAGAATGTAGTTGCCTC  
AGATACATACAGTGAATGGCACTAAGAATTGATGAAACCTTTTC  
TTACTGAGCACTAGGCAAAATGAGAAGGTTCATATGACGGGGCATA  
TGCTCCAGTACTCAAGATTCTAGGTCTTAAATGATTCAACAAATAG  
AACAAAGAAACACACAGCTCATTCTCAAAAAAGGGGAGGAAGAA  
AACTTGGAAAGGCTTGGAAATCAAACCAAGCAAAATTGTAGAGAAATAT  
GCATGCACCACAAGGAATATCTCTTAATACAAGCCAGCAGAATTG  
TCACGCAACGTAGTAAGAGAGCTTGAACAAATTCAGACTCCACTA

## FIG. 72A-3 300/497

GAAGAAACAGAACATTGAAAAAAGGATAATTGTGGATGACACCTCAAC  
CCAGTGGTCCAAAAACATGAAACATTGACCCCGAGCACCCTCACAC  
AGATAGACTACAATGAGAAGGAGAAAGGGGCCATTACTCAGTCTCCC  
TTATCAGATTGCCTTACGAGGAGTCATAGCATCCCTCAAGCAAATAGA  
TCTCCATTACCCATTGCAAAGGTATCATCATTTCCATCTATTAGACCTA  
TATATCTGACCAGGGCCTATTCCAAGACAACTCTCTCATCTTCCAG  
CAGCATCTTATAGAAAAGAAAGATTCTGGGGTCCAAGAAAGCAGTCAT  
TTCTTACAAGGAGCCAAAAAAATAACCTTCTTAGCCATTCTAACCC  
TTGGAGATGACTGGTGATCAAAGAGAGGTTGGCTCCCTGGGACAAG  
TGCCACAAATCAGTCACATACAAGAAAGTTGAGAACACTGTTCTCCC  
GAAACCAGACTGCCAAAACATCTGGCAAAGTTGAATTGCTTCAA  
AAGTCACATTATCAGAAGGACCTATTCCCTACGGAAACTAGCAATG  
GGTCTCCTGGCCATCTGGATCTCGTGGAGGGAGCCTTCTCAGGGAA  
CAGAGGGAGCGATTAAGTGAATGAAGCAAACAGACCTGGAAAAGT  
TCCCTTCTGAGAGTAGCAACAGAAAGCTCTGCAAAGACTCCCTCAA  
GCTATTGGATCCTCTGCTTGGATAACCACATGGTACTCAGATACC  
AAAAGAAGAGTGGAAATCCAAGAGAAGTCACCAAGAAAAACAGCT  
TTAAGAAAAGGATACCATTGTCCCTGAACGCTGTGAAAGCAAT  
CATGCAATAGCAGCAATAATGAGGGACAAAATAAGCCGAAATAG  
AAGTCACCTGGCAAAGCAAGGTAGGACTGAAAGGCTGTGCTCTCAA  
AACCCACCAGTCTGAAACGCCATCAACGGGAAATAACTCGTACTAC  
TCTTCAGTCAGATCAAGAGGAAATTGACTATGATGATACCATACTAGT  
TGAAATGAAGAAGGAAGATTGACATTATGATGAGGATGAAAATC  
AGAGCCCCCGCAGCTTCAAAAGAAAACGACACTATTTATTGCTG  
CAGTGGAGAGGGCTCTGGATTATGGATGAGTAGCTCCCCACATGTT  
CTAAGAAAACAGGGCTCAGAGTGGCAGTGTCCCTCAGTTCAAGAAAGT  
TGTTTCCAGGAATTACTGATGGCTCCTTACTCAGCCCTATACCGT  
GGAGAACTAAATGAACATTGGACTCCTGGGCCATATAAGAGC  
AGAAGTTGAAGATAATATCATGGTAACCTTCAGAAATCAGGCCTCTC  
GTCCCTATTCTTCTATTCTAGCCTTATTCTTATGAGGAAGATCAGAG  
GCAAGGAGCAGAACCTAGAAAAACTTGTCAAGCCTAATGAAACCA  
AAACTTACTTTGGAAAGTGCAACATCATATGGCACCCACTAAAGAT  
GAGTTGACTGCAAAGCCTGGCTTATTCTCTGATGTTGACCTGGAA  
AAAGATGTGCACTCAGGCCTGATTGGACCCCTCTGGTCTGCCACACT  
AACACACTGAACCCCTGCTCATGGGAGACAAGTGACAGTACAGGAATT  
TGCTCTGTTTCAACCATTGATGAGACCAAAAGCTGGTACTTCACT  
GAAAATATGGAAAGAAACTGCAGGGCTCCCTGCAATATCCAGATGGA  
AGATCCCACCTTAAAGAGAATTATCGCTCCATGCAATCAATGGCTA  
CATAAATGGATACACTACCTGGCTTAGTAATGGCTCAGGATCAAAGGA  
TTCGATGGTATCTGCTCAGCATGGCAGCAATGAAAACATCCATTCT  
ATTCAATTCACTGGACATGTGTTCACTGTACGAAAAAAAGAGGAGTA  
AAAAATGGCACTGTACAATCTCATCCAGGTGTTTGAGACAGTGGA

FIG. 72A-4

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AATGTTACCATCCAAAGCTGGAATTGGCGGGTGGAAATGCCTTATTGG  
CGAGCATCTACATGCTGGATGAGCACACTTTCTGGTGTACAGCAA  
TAAGTGTCAAGACTCCCCTGGGAATGGCTCTGGACACATAGAGATT  
TCAGATTACAGCTCAGGACAATATGGACAGTGGGCCAAAGCTGG  
CCAGACTTCATTATTCCGGATCAATCAAATGCCTGGAGCACCAAGGAG  
CCCTTTCTGGATCAAGGTGGATCTGTTGGCACCAATGATTATTACAC  
GGCATCAAGACCCAGGGTCCCCGTAGAACAGTCTCCAGCCTACAT  
CTCTCAGTTATCATCATGTATAGTCTGATGGGAAGAAGTGGCAGA  
CTTATCGAGGAAATTCCACTGGAACCTTAATGGTCTTGGCAATG  
TGGATTCATCTGGATAAAACACAATATTAAACCCCTCCAATTATTG  
CTCGATACATCCGTTGCACCCAACTCATTATAGCATTGCGAGCACTC  
TTCGCATGGAGTTGATGGCTGTGATTTAAATAGTGCAGCATGCCAT  
TGGGAATGGAGAGTAAAGCAATATCAGATGCACAGATTACTGCTTCA  
TCCTACTTACCAATATGTTGCCACCTGGTCTCCTTCAAAAGCTCGA  
CTTCACCTCCAAGGGAGGAGTAATGCCTGGAGACCTCAGGTGAATAA  
TCCAAAAGAGTGGCTGCAAGTGGACTTCCAGAACAGACAATGAAAGTCA  
CAGGAGTAACTACTCAGGGAGTAAAATCTCTGCTTACCAAGCAGTAT  
GTGAAGGAGTTCCATCTCCAGTCAAGATGCCATCAGTGGAC  
TCTCTTTTCAAGATGGCAAAGTAAAGGTTTCAGGGAAATCAAGA  
CTCCTCACACCTGTGGTGAACCTCTAGACCCACCCTACTGACTCG  
CTACCTTCGAATTCAACCCCCAGAGTTGGTGCACCAGATTGCCCTGAG  
GATGGAGGTTCTGGCTGCGAGGCACAGGACCTACTGAGGGTGGC  
CACTGCAGCACCTGCCACTGCCGTACCTCTCCCTCAGCTCCAGG  
GCAGTGTCCCTCCCTGGCTGCCTCTACCTTGCTAAATCCTAGC  
AGACACTGCCCTGAAGCCTCTGAATTAACTATCATCAGTCTGCATT  
TCTTGGTGGGGGCCAGGAGGGTGCATCCAATTAACTTAACTCTTA  
CCTATTTCTGCAGCTGCTCCAGATTACTCCTCCTCCAATATAACT  
AGGCAAAAAGAAGTGGAGGAGAACCTGCATGAAAGCATTCTCCCTG  
AAAAGTTAGGCCTCTCAGAGTCACCACCTCTGTTGAGAAAAACT  
ATGTGATGAAACTTGAAAAAGATATTATGATGTTAACATTCAAGGT  
TAAGCCTCATCGTTAAAATAAAACTCTCAGTTGTTATTATCCTGA  
TCAAGCATGGAACAAAGCATGTTCAAGGATCAGATCAATACAATCTT  
GGAGTCAAAAGGCAAATCATGGACAATCTGCAAATGGAGAGAA  
TACAATAACTACAGTAAAGTCTGTTCTGCTCCTACACATAGA  
TATAATTATGTTATTAGTCATTATGAGGGGCACATTCTATCTCAA  
AACTAGCATTCTTAAACTGAGAATTATAGATGGGGTCAAGAATCCC  
TAAGTCCCCTGAAATTATATAAGGCATTCTGTATAAATGCAAATGTGC  
ATTTTCTGACGAGTGTCCATAGATATAAAGGCCATTGGTCTTAATTCT  
GACCAATAAAAAATAAGTCAGGAGGATGCAATTGTTGAAAGCTTG  
AAATAAAATAACAATGTCTTGTAAATTGTGATGGCCAAGAAAGA  
AAATGATGA

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FIG. 72B-1

Met Gln Ile Glu Leu Ser Thr Cys Phe Phe Leu Cys Leu Leu Arg Phe Cys Phe Ser Ala Thr Arg Arg Tyr Tyr Leu Gly Ala Val Glu Leu Ser Trp Asp Tyr Met Gln Ser Asp Leu Gly Glu Leu Pro Val Asp Ala Arg Phe Pro Pro Arg Val Pro Lys Ser Phe Pro Phe Asn Thr Ser Val Val Tyr Lys Lys Thr Leu Phe Val Glu Phe Thr Asp His Leu Phe Asn Ile Ala Lys Pro Arg Pro Trp Met Gly Leu Leu Gly Pro Thr Ile Gln Ala Glu Val Tyr Asp Thr Val Val Ile Thr Leu Lys Asn Met Ala Ser His Pro Val Ser Leu His Ala Val Gly Val Ser Tyr Trp Lys Ala Ser Glu Gly Ala Glu Tyr Asp Asp Gln Thr Ser Gln Arg Glu Lys Glu Asp Asp Lys Val Phe Pro Gly Gly Ser His Thr Tyr Val Trp Gln Val Leu Lys Glu Asn Gly Pro Met Ala Ser Asp Pro Leu Cys Leu Thr Tyr Ser Tyr Leu Ser His Val Asp Leu Val Lys Asp Leu Asn Ser Gly Leu Ile Gly Ala Leu Leu Val Cys Arg Glu Gly Ser Leu Ala Lys Glu Lys Thr Gln Thr Leu His Lys Phe Ile Leu Leu Phe Ala Val Phe Asp Glu Gly Lys Ser Trp His Ser Glu Thr Lys Asn Ser Leu Met Gln Asp Arg Asp Ala Ala Ser Ala Arg Ala Trp Pro Lys Met His Thr Val Asn Gly Tyr Val Asn Arg Ser Leu Pro Gly Leu Ile Gly Cys His Arg Lys Ser Val Tyr Trp His Val Ile Gly Met Gly Thr Thr Pro Glu Val His Ser Ile Phe Leu Glu Gly His Thr Phe Leu Val Arg Asn His Arg Gln Ala Ser Leu Glu Ile Ser Pro Ile Thr Phe Leu Thr Ala Gln Thr Leu Leu Met Asp Leu Gly Gln Phe Leu Leu Phe Cys His Ile Ser Ser His Gln His Asp Gly Met Glu Ala Tyr Val Lys Val Asp Ser Cys Pro Glu Glu Pro Gln Leu Arg Met Lys Asn Asn Glu Glu Ala Glu Asp Tyr Asp Asp Leu Thr Asp Ser Glu Met Asp Val Val Arg Phe Asp Asp Asp Asn Ser Pro Ser Phe Ile Gln Ile Arg Ser Val Ala Lys Lys His Pro Lys Thr Trp Val His Tyr Ile Ala Ala Glu Glu Asp Trp Asp Tyr Ala Pro Leu Val Leu Ala Pro Asp Asp Arg Ser Tyr Lys Ser Gln Tyr Leu Asn Asn Gly Pro Gln Arg Ile Gly Arg Lys Tyr Lys Val Arg Phe Met Ala Tyr Thr Asp Glu Thr Phe Lys Thr Arg Glu Ala Ile Gln His Glu Ser Gly Ile Leu Gly Pro Leu Leu Tyr Gly Glu Val Gly Asp Thr Leu Leu Ile Ile Phe Lys Asn Gln Ala Ser Arg Pro Tyr Asn Ile Tyr Pro His Gly Ile Thr Asp Val Arg Pro Leu Tyr Ser Arg Arg Leu Pro Lys Gly Val Lys His Leu Lys Asp Phe Pro Ile Leu Pro Gly Glu Ile Phe Lys Tyr Lys Trp Thr Val Thr Val Glu Asp Gly Pro Thr Lys Ser Asp Pro Arg Cys Leu Thr Arg Tyr Tyr Ser Ser Phe Val Asn Met Glu Arg Asp Leu Ala Ser Gly Leu Ile Gly Pro Leu Leu Ile Cys Tyr Lys Glu Ser Val Asp Gln Arg Gly Asn Gln Ile Met Ser Asp Lys Arg Asn Val Ile Leu Phe Ser Val Phe Asp Glu Asn Arg Ser Trp Tyr Leu Thr Glu Asn Ile Gln Arg Phe Leu Pro Asn Pro Ala Gly Val Gln Leu Glu Asp Pro Glu Phe Gln Ala Ser Asn Ile Met His Ser Ile Asn Gly Tyr Val Phe Asp Ser Leu Gln Leu Ser Val Cys Leu His Glu Val Ala Tyr Trp Tyr Ile Leu Ser Ile Gly Ala Gln Thr Asp Phe Leu Ser Val Phe Phe Ser Gly Glu Thr Val His Lys Met Val Tyr Glu Asp Thr Leu Thr Leu Phe Pro Phe Ser Gly Glu Thr Val Phe Met Ser Met Glu Asn Pro Gly Leu Trp Ile Leu Gly Cys His Asn Ser Asp Phe

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FIG. 72B-2

Arg Asn Arg Gly Met Thr Ala Leu Leu Lys Val Ser Ser Cys Asp Lys Asn Thr  
Gly Asp Tyr Tyr Glu Asp Ser Tyr Glu Asp Ile Ser Ala Tyr Leu Leu Ser Lys Asn  
Asn Ala Ile Glu Pro Arg Ser Phe Ser Gln Asn Ser Arg His Arg Ser Thr Arg Gln  
Lys Gln Phe Asn Ala Thr Thr Ile Pro Glu Asn Asp Ile Glu Lys Thr Asp Pro Trp  
Phe Ala His Arg Thr Pro Met Pro Lys Ile Gln Asn Val Ser Ser Asp Leu Leu  
Met Leu Leu Arg Gln Ser Pro Thr Pro His Gly Leu Ser Leu Ser Asp Leu Gln Glu  
Ala Lys Tyr Glu Thr Phe Ser Asp Asp Pro Ser Pro Gly Ala Ile Asp Ser Asn Asn  
Ser Leu Ser Glu Met Thr His Phe Arg Pro Gln Leu His His Ser Gly Asp Met Val  
Phe Thr Pro Glu Ser Gly Leu Gln Leu Arg Leu Asn Glu Lys Leu Gly Thr Thr  
Ala Ala Thr Glu Leu Lys Leu Asp Phe Lys Val Ser Ser Thr Ser Asn Asn Leu  
Ile Ser Thr Ile Pro Ser Asp Asn Leu Ala Ala Gly Thr Asp Asn Thr Ser Ser Leu  
Gly Pro Pro Ser Met Pro Val His Tyr Asp Ser Gln Leu Asp Thr Thr Leu Phe Gly  
Lys Lys Ser Ser Pro Leu Thr Glu Ser Gly Gly Pro Leu Ser Leu Ser Glu Glu Asn  
Asn Asp Ser Lys Leu Leu Glu Ser Gly Leu Met Asn Ser Gln Glu Ser Ser Trp Gly  
Lys Asn Val Ser Ser Thr Glu Ser Gly Arg Leu Phe Lys Gly Lys Arg Ala His Gly  
Pro Ala Leu Leu Thr Lys Asp Asn Ala Leu Phe Lys Val Ser Ile Ser Leu Leu  
Lys Thr Asn Lys Thr Ser Asn Asn Ser Ala Thr Asn Arg Lys Thr His Ile Asp  
Gly Pro Ser Leu Leu Ile Glu Asn Ser Pro Ser Val Trp Gln Asn Ile Leu Glu Ser  
Asp Thr Glu Phe Lys Lys Val Thr Pro Leu Ile His Asp Arg Met Leu Met Asp  
Lys Asn Ala Thr Ala Leu Arg Leu Asn His Met Ser Asn Lys Thr Thr Ser Ser  
Lys Asn Met Glu Met Val Gln Gln Lys Lys Glu Gly Pro Ile Pro Pro Asp Ala  
Gln Asn Pro Asp Met Ser Phe Phe Lys Met Leu Phe Leu Pro Glu Ser Ala Arg  
Trp Ile Gln Arg Thr His Gly Lys Asn Ser Leu Asn Ser Gly Gln Gly Pro Ser Pro  
Lys Gln Leu Val Ser Leu Gly Pro Glu Lys Ser Val Glu Gly Gln Asn Phe Leu  
Ser Glu Lys Asn Lys Val Val Val Gly Lys Gly Glu Phe Thr Lys Asp Val Gly  
Leu Lys Glu Met Val Phe Pro Ser Ser Arg Asn Leu Phe Leu Thr Asn Leu Asp  
Asn Leu His Glu Asn Asn Thr His Asn Gln Glu Lys Lys Ile Gln Glu Glu Ile  
Glu Lys Lys Glu Thr Leu Ile Gln Glu Asn Val Val Leu Pro Gln Ile His Thr  
Val Thr Gly Thr Lys Asn Phe Met Lys Asn Leu Phe Leu Leu Ser Thr Arg Gln  
Asn Val Glu Gly Ser Tyr Asp Gly Ala Tyr Ala Pro Val Leu Gln Asp Phe Arg  
Ser Leu Asn Asp Ser Thr Asn Arg Thr Lys Lys His Thr Ala His Phe Ser Lys  
Lys Gly Glu Glu Asn Leu Glu Gly Leu Gly Asn Gln Thr Lys Gln Ile Val  
Glu Lys Tyr Ala Cys Thr Thr Arg Ile Ser Pro Asn Thr Ser Gln Gln Asn Phe  
Val Thr Gln Arg Ser Lys Arg Ala Leu Lys Gln Phe Arg Leu Pro Leu Glu Glu  
Thr Glu Leu Glu Lys Arg Ile Val Asp Asp Thr Ser Thr Gln Trp Ser Lys Asn  
Met Lys His Leu Thr Pro Ser Thr Leu Thr Gln Ile Asp Tyr Asn Glu Lys Glu  
Lys Gly Ala Ile Thr Gln Ser Pro Leu Ser Asp Cys Leu Thr Arg Ser His Ser Ile  
Pro Gln Ala Asn Arg Ser Pro Leu Pro Ile Ala Lys Val Ser Ser Phe Pro Ser Ile  
Arg Pro Ile Tyr Leu Thr Arg Val Leu Phe Gln Asp Asn Ser Ser His Leu Pro

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FIG. 72B-3

Ala Ala Ser Tyr Arg Lys Lys Asp Ser Gly Val Gln Glu Ser Ser His Phe Leu  
Gln Gly Ala Lys Lys Asn Asn Leu Ser Leu Ala Ile Leu Thr Leu Glu Met Thr  
Gly Asp Gln Arg Glu Val Gly Ser Leu Gly Thr Ser Ala Thr Asn Ser Val Thr  
Tyr Lys Lys Val Glu Asn Thr Val Leu Pro Lys Pro Asp Leu Pro Lys Thr Ser  
Gly Lys Val Glu Leu Leu Pro Lys Val His Ile Tyr Gln Lys Asp Leu Phe Pro  
Thr Glu Thr Ser Asn Gly Ser Pro Gly His Leu Asp Leu Val Glu Gly Ser Leu  
Leu Gln Gly Thr Glu Gly Ala Ile Lys Trp Asn Glu Ala Asn Arg Pro Gly Lys  
Val Pro Phe Leu Arg Val Ala Thr Glu Ser Ser Ala Lys Thr Pro Ser Lys Leu  
Leu Asp Pro Leu Ala Trp Asp Asn His Tyr Gly Thr Gln Ile Pro Lys Glu Glu  
Trp Lys Ser Gln Glu Lys Ser Pro Glu Lys Thr Ala Phe Lys Lys Asp Thr Ile  
Leu Ser Leu Asn Ala Cys Glu Ser Asn His Ala Ile Ala Ala Ile Asn Glu Gly  
Gln Asn Lys Pro Glu Ile Glu Val Thr Trp Ala Lys Gln Gly Arg Thr Glu Arg  
Leu Cys Ser Gln Asn Pro Pro Val Leu Lys Arg His Gln Arg Glu Ile Thr Arg  
Thr Thr Leu Gln Ser Asp Gln Glu Glu Ile Asp Tyr Asp Asp Thr Ile Ser Val Glu  
Met Lys Lys Glu Asp Phe Asp Ile Tyr Asp Glu Asp Glu Asn Gln Ser Pro Arg  
Ser Phe Gln Lys Lys Thr Arg His Tyr Phe Ile Ala Ala Val Glu Arg Leu Trp Asp  
Tyr Gly Met Ser Ser Ser Pro His Val Leu Arg Asn Arg Ala Gln Ser Gly Ser Val  
Pro Gln Phe Lys Lys Val Val Phe Gln Glu Phe Thr Asp Gly Ser Phe Thr Gln Pro  
Leu Tyr Arg Gly Glu Leu Asn Glu His Leu Gly Leu Leu Gly Pro Tyr Ile Arg  
Ala Glu Val Glu Asp Asn Ile Met Val Thr Phe Arg Asn Gln Ala Ser Arg Pro  
Tyr Ser Phe Tyr Ser Ser Leu Ile Ser Tyr Glu Glu Asp Gln Arg Gln Gly Ala Glu  
Pro Arg Lys Asn Phe Val Lys Pro Asn Glu Thr Lys Thr Tyr Phe Trp Lys Val  
Gln His His Met Ala Pro Thr Lys Asp Glu Phe Asp Cys Lys Ala Trp Ala Tyr  
Phe Ser Asp Val Asp Leu Glu Lys Asp Val His Ser Gly Leu Ile Gly Pro Leu  
Leu Val Cys His Thr Asn Thr Leu Asn Pro Ala His Gly Arg Gln Val Thr Val Gln  
Glu Phe Ala Leu Phe Phe Thr Ile Phe Asp Glu Thr Lys Ser Trp Tyr Phe Thr Glu  
Asn Met Glu Arg Asn Cys Arg Ala Pro Cys Asn Ile Gln Met Glu Asp Pro Thr  
Phe Lys Glu Asn Tyr Arg Phe His Ala Ile Asn Gly Tyr Ile Met Asp Thr Leu Pro  
Gly Leu Val Met Ala Gln Asp Gln Arg Ile Arg Trp Tyr Leu Leu Ser Met Gly  
Ser Asn Glu Asn Ile His Ser Ile His Phe Ser Gly His Val Phe Thr Val Arg Lys  
Lys Glu Glu Tyr Lys Met Ala Leu Tyr Asn Leu Tyr Pro Gly Val Phe Glu Thr  
Val Glu Met Leu Pro Ser Lys Ala Gly Ile Trp Arg Val Glu Cys Leu Ile Gly Glu  
His Leu His Ala Gly Met Ser Thr Leu Phe Leu Val Tyr Ser Asn Lys Cys Gln Thr  
Pro Leu Gly Met Ala Ser Gly His Ile Arg Asp Phe Gln Ile Thr Ala Ser Gly Gln  
Tyr Gly Gln Trp Ala Pro Lys Leu Ala Arg Leu His Tyr Ser Gly Ser Ile Asn Ala  
Trp Ser Thr Lys Glu Pro Phe Ser Trp Ile Lys Val Asp Leu Leu Ala Pro Met Ile  
Ile His Gly Ile Lys Thr Gln Gly Ala Arg Gln Lys Phe Ser Ser Leu Tyr Ile Ser  
Gln Phe Ile Ile Met Tyr Ser Leu Asp Gly Lys Lys Trp Gln Thr Tyr Arg Gly  
Asn Ser Thr Gly Thr Leu Met Val Phe Phe Gly Asn Val Asp Ser Ser Gly Ile

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## FIG. 72B-4

Lys His Asn Ile Phe Asn Pro Pro Ile Ile Ala Arg Tyr Ile Arg Leu His Pro Thr His Tyr Ser Ile Arg Ser Thr Leu Arg Met Glu Leu Met Gly Cys Asp Leu Asn Ser Cys Ser Met Pro Leu Gly Met Glu Ser Lys Ala Ile Ser Asp Ala Gln Ile Thr Ala Ser Ser Tyr Phe Thr Asn Met Phe Ala Thr Trp Ser Pro Ser Lys Ala Arg Leu His Leu Gln Gly Arg Ser Asn Ala Trp Arg Pro Gln Val Asn Asn Pro Lys Glu Trp Leu Gln Val Asp Phe Gln Lys Thr Met Lys Val Thr Gly Val Thr Thr Gln Gly Val Lys Ser Leu Leu Thr Ser Met Tyr Val Lys Glu Phe Leu Ile Ser Ser Ser Gln Asp Gly His Gln Trp Thr Leu Phe Phe Gln Asn Gly Lys Val Lys Val Phe Gln Gly Asn Gln Asp Ser Phe Thr Pro Val Val Asn Ser Leu Asp Pro Pro Leu Leu Thr Arg Tyr Leu Arg Ile His Pro Gln Ser Trp Val His Gln Ile Ala Leu Arg Met Glu Val Leu Gly Cys Glu Ala Gln Asp Leu Tyr

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FIG. 73A

TCCACCTGTCCCCGAGGCCGGCTCGGCCCTCCTGCCGCAGCCACC  
GAGCCGCCGTCTAGCGCCCCGACCTCGCCACCATGAGAGGCCCTGCTG  
GCGGCCCTGCTCTCGCTGGTCGTGAGCGACTCCAAAGGCAGC  
AATGAACCTCATCAAGTCCATCGAACTGTGACTGTCTAAATGGAGGA  
ACATGTGTGTCACAAACAAGTACTTCTCCAACATTCACTGGTGCAACTGC  
CCAAAGAAATTGGAGGGCAGCACTGTGAAATAGATAAGTCAAAAAC  
CTGCTATGAGGGGAATGGTCACCTTACCGAGGAAAGGCCAGCACTG  
ACACCATGGGCCGGCCCTGCCTGCCCTGGAACCTGCCACTGTCCTTC  
AGCAAACGTACCATGCCAACAGATCTGATGCTCTCAGCTGGCCCTGG  
GGAAACATAATTACTGCAGGAACCCAGACAACCGGAGGCGACCCCTGG  
TGCTATGTGCAGGTGGCCTAAAGCCGCTTGTCCAAGAGTGCATGGT  
GCATGACTGCGCAGATGGAAAAAGCCCTCCTCCCTCAGAAGAAT  
TAAAATTCACTGTGGCAAAAGACTCTGAGGCCCGCTTAAGATTA  
TTGGGGGAGAATTACCAACCACATCGAGAACCAAGCCCTGGTTGCGGCC  
ATCTACAGGAGGCACCGGGGGGCTCTGCACCTACGTGTGGAGG  
CAGCCTCATCAGCCCTGCTGGTGATCAGCGCACACACTGCTTCAT  
TGATTACCCAAAGAAGGAGGACTACATCGTCTACCTGGTCGCTCAA  
GGCTTAACTCCAACACGCAAGGGAGATGAAGTTGAGGTGGAAAAC  
CTCATCCTACACAAGGACTACAGCGCTGACACGCTGCTCACCACAAC  
GACATTGCCTGCTGAAGATCCGTTCCAAGGAGGGCAGGTGTGCGCA  
GCCATCCCAGGACTATACAGACCATCTGCCCTCGATGTATAACGA  
TCCCCAGTTGGCACAAGCTGTGAGATCACTGGCTTGAAAAGAGA  
ATTCTACCGACTATCTCTATCCGGAGCAGCTGAAGATGACTGTGTA  
AGCTGATTTCCCACCGGGAGTGTCAAGCAGCCCCACTACTACGGCTCTG  
AAGTCACCACCAAAATGCTGTGCTGCTGACCCACAGTGGAAAACA  
GATTCCCTGCCAGGGAGACTCAGGGGGACCCCTCGTCTGTTCCCTCAA  
GGCCGCATGACTTTGACTGGAATTGTGAGCTGGGGCCGTGGATGTGC  
CCTGAAGGACAAGCCAGGCAGTCTACACGAGAGTCTCACACTTCTAC  
CCTGGATCCGCAGTCACACCAAGGAAGAGAATGGCCTGGCCCTGTA  
GGGTCCCCAGGGAGGAAACGGGCACCACCGCTTCTGCTGGTTGTC  
ATTTTGCACTAGAGTCATCTCCATCAGCTGTAAGAAGAGACTGGGA  
AGAT

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## FIG. 73B

Met Arg Ala Leu Leu Ala Arg Leu Leu Leu Cys Val Leu Val Val Ser Asp Ser Lys Gly Ser Asn Glu Leu His Gln Val Pro Ser Asn Cys Asp Cys Leu Asn Gly Gly Thr Cys Val Ser Asn Lys Tyr Phe Ser Asn Ile His Trp Cys Asn Cys Pro Lys Lys Phe Gly Gly Gln His Cys Glu Ile Asp Lys Ser Lys Thr Cys Tyr Glu Gly Asn Gly His Phe Tyr Arg Gly Lys Ala Ser Thr Asp Thr Met Gly Arg Pro Cys Leu Pro Trp Asn Ser Ala Thr Val Leu Gln Gln Thr Tyr His Ala His Arg Ser Asp Ala Leu Gln Leu Gly Leu Gly Lys His Asn Tyr Cys Arg Asn Pro Asp Asn Arg Arg Arg Pro Trp Cys Tyr Val Gln Val Gly Leu Lys Pro Leu Val Gln Glu Cys Met Val His Asp Cys Ala Asp Gly Lys Lys Pro Ser Ser Pro Pro Glu Glu Leu Lys Phe Gln Cys Gly Gln Lys Thr Leu Arg Pro Arg Phe Lys Ile Ile Gly Gly Glu Phe Thr Thr Ile Glu Asn Gln Pro Trp Phe Ala Ala Ile Tyr Arg Arg His Arg Gly Gly Ser Val Thr Tyr Val Cys Gly Gly Ser Leu Ile Ser Pro Cys Trp Val Ile Ser Ala Thr His Cys Phe Ile Asp Tyr Pro Lys Lys Glu Asp Tyr Ile Val Tyr Leu Gly Arg Ser Arg Leu Asn Ser Asn Thr Gln Gly Glu Met Lys Phe Glu Val Glu Asn Leu Ile Leu His Lys Asp Tyr Ser Ala Asp Thr Leu Ala His His Asn Asp Ile Ala Leu Leu Lys Ile Arg Ser Lys Glu Gly Arg Cys Ala Gln Pro Ser Arg Thr Ile Gln Thr Ile Cys Leu Pro Ser Met Tyr Asn Asp Pro Gln Phe Gly Thr Ser Cys Glu Ile Thr Gly Phe Gly Lys Glu Asn Ser Thr Asp Tyr Leu Tyr Pro Glu Gln Leu Lys Met Thr Val Val Lys Leu Ile Ser His Arg Glu Cys Gln Gln Pro His Tyr Tyr Gly Ser Glu Val Thr Thr Lys Met Leu Cys Ala Ala Asp Pro Gln Trp Lys Thr Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Ser Leu Gln Gly Arg Met Thr Leu Thr Gly Ile Val Ser Trp Gly Arg Gly Cys Ala Leu Lys Asp Lys Pro Gly Val Tyr Thr Arg Val Ser His Phe Leu Pro Trp Ile Arg Ser His Thr Lys Glu Glu Asn Gly Leu Ala Leu

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FIG.74A

TCCTGCACAGGCAGTGCCTGAAGTGCTCTCAGAGACCTTCTCA  
TAGACTACTTTTTCTTAAGCAGAAAAGGAGAAAATTGTATCA  
AGGATATTCCAGATTCTGACAGCATTCTCGTATCTGAGGACATC  
ACCATCATCTCAGGATGAGGGGCATGAAGCTGCTGGGGCGCTGCTG  
GCACTGGCGGCCCTACTGCAGGGGGCGTGTCCCTGAAGATCGCAGC  
CTTCAACATCCAGACATTGGGGAGACCAAGATGTCCAATGCCACCCT  
CGTCAGCTACATTGTGCAGATCCTGAGCCGCTATGACATGCCCTGGT  
CCAGGAGGTCAAGAGACAGCCACCTGACTGCCGTGGGAAGCTGCTGG  
ACAACCTCAATCAGGATGCACCAGACACCTATCACTACGTGGTCAGT  
GAGCCACTGGGACGGAACAGCTATAAGGAGCGCTACCTGTTCGTGTGA  
CAGGCCTGACCAGGTGTCTCGGGTGGACAGCTACTACTACGATGATG  
GCTGCGAGCCCTGCGGGAACGACACCTCAACCGAGAGGCCAGCATT  
GTCAGGTTCTCTCCGGTTCACAGAGGTCAAGGAGTTGCCATTGTT  
CCCCTGCATCGGCCCCGGGGACGCAGTAGCCGAGATCGACGCTCT  
CTATGACGTCTACCTGGATGTCCAAGAGAAATGGGGCTGGAGGACG  
TCATGTTGATGGGCGACTTCAATGCGGGCTGCAGCTATGTGAGACCC  
CCCAGTGGTCATCCATCCGCCTGTGGACAAGCCCCACCTCCAGTGGC  
TGATCCCCGACAGCGCTGACACCACAGCTACACCCACGCACTGTGCCT  
ATGACAGGATCGTGGTGCAGGGATGCTGCTCCGAGGCGCCGTTGTT  
CCGACTCGGCTTCCCTTAACCTCCAGGCTGCCTATGGCCTGAGTG  
ACCAACTGGCCCAAGCCATCAGTGACCACTATCCAGTGGAGGTGATG  
CTGAAGTGAGCAGCCCCTCCCCACACCAGTTGAAC TGCAAG

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FIG. 74B

Met Arg Gly Met Lys Leu Leu Gly Ala Leu Leu Ala Leu Ala Leu Leu Gln  
Gly Ala Val Ser Leu Lys Ile Ala Ala Phe Asn Ile Gln Thr Phe Gly Glu Thr Lys  
Met Ser Asn Ala Thr Leu Val Ser Tyr Ile Val Gln Ile Leu Ser Arg Tyr Asp Ile  
Ala Leu Val Gln Glu Val Arg Asp Ser His Leu Thr Ala Val Gly Lys Leu Leu  
Asp Asn Leu Asn Gln Asp Ala Pro Asp Thr Tyr His Tyr Val Val Ser Glu Pro  
Leu Gly Arg Asn Ser Tyr Lys Glu Arg Tyr Leu Phe Val Tyr Arg Pro Asp Gln  
Val Ser Ala Val Asp Ser Tyr Tyr Asp Asp Gly Cys Glu Pro Cys Gly Asn  
Asp Thr Phe Asn Arg Glu Pro Ala Ile Val Arg Phe Phe Ser Arg Phe Thr Glu Val  
Arg Glu Phe Ala Ile Val Pro Leu His Ala Ala Pro Gly Asp Ala Val Ala Glu Ile  
Asp Ala Leu Tyr Asp Val Tyr Leu Asp Val Gln Glu Lys Trp Gly Leu Glu Asp  
Val Met Leu Met Gly Asp Phe Asn Ala Gly Cys Ser Tyr Val Arg Pro Ser Gln  
Trp Ser Ser Ile Arg Leu Trp Thr Ser Pro Thr Phe Gln Trp Leu Ile Pro Asp Ser  
Ala Asp Thr Thr Ala Thr Pro Thr His Cys Ala Tyr Asp Arg Ile Val Val Ala Gly  
Met Leu Leu Arg Gly Ala Val Val Pro Asp Ser Ala Leu Pro Phe Asn Phe Gln  
Ala Ala Tyr Gly Leu Ser Asp Gln Leu Ala Gln Ala Ile Ser Asp His Tyr Pro Val  
Glu Val Met Leu Lys

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FIG. 75A

GCTGCATCAGAAGAGGCCATCAAGCACATCACTGTCCTCTGCCATGG  
CCCTGTGGATGCGCCTCCTGCCCTGCTGGCGCTGCTGGCCCTCTGGG  
GACCTGACCCAGCCGCAGCCTTGTGAACCAACACCTGTGCGGCTCAC  
ACCTGGTGGAAAGCTCTACTAGTGTGCGGGGACGAGGCTTCTTCT  
ACACACCCAAGACCCGCCGGGAGGCAGAGGACCTGCAGGTGGGCA  
GGTGGAGCTGGCGGGGGCCCTGGTGCAGGCAGCCTGCAGCCCTGG  
CCCTGGAGGGGTCCCTGCAGAAGCGTGGATTGTGGAACAATGCTGT  
ACCAGCATCTGCTCCCTCTACCAGCTGGAGAACTACTGCAACTAGACG  
CAGCCCGCAGGCAGCCCCCACCCGCCCTGCACCGAGAGAGA  
TGGAATAAAGGCCCTGAACCAGC

FIG. 75B

Met Ala Leu Trp Met Arg Leu Leu Pro Leu Leu Ala Leu Leu Ala Leu Trp Gly  
Pro Asp Pro Ala Ala Ala Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val  
Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr  
Arg Arg Glu Ala Glu Asp Leu Gln Val Gly Gln Val Glu Leu Gly Gly Pro  
Gly Ala Gly Ser Leu Gln Pro Leu Ala Leu Glu Gly Ser Leu Gln Lys Arg Gly Ile  
Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn

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FIG. 76A

ATGGGAGGTTGGTCTTCAAACCTCGACAAGGCATGGGGACGAATCT  
TTCTGTTCCCAATCCTCTGGGATTCTTCCCGATCACCAAGTTGGACCCCT  
GCGTCGGAGCCAACCTAAACAATCCAGATTGGGACTTCAACCCCAA  
CAAGGATCACTGGCCAGAGGAATCAAGGTAGGAGCGGGAGACTTC  
GGGCCAGGGTTCACCCCACACACGGCGGTCTTGGGGTGGAGCCC  
TCAGGCTCAGGGCATATTGACAACAGTGCCAGCAGCGCCTCCTCTG  
TTTCCACCAATCGGCAGTCAGGAAGACAGCCTACTCCCATCTCTCAC  
CTCTAACAGAGACAGTCATCCTCAGGCCATGCAGTGGAACTCCACAACA  
TTCCACCAAGCTCTGCTAGATCCCAGAGTGAGGGGCCTATATTTCCT  
GCTGGTGGCTCCAGTTCCGGAACAGTAAACCCCTGTTCCGACTACTGTC  
TCACCCATATCGTCAATCTCTCGAGGAAGTGGGGACCCTGCACCGAAC  
ATGGAGAGCACAACATCAGGATTCTAGGACCCCTGCTCGTGTACA  
GGCGGGGTTTCTTGTGACAAGAACCTCACAATACCACAGAGTCT  
AGACTCGTGGTGGACTTCTCTCAATTTCAGGGGAGCACCCACGTG  
TCCTGGCCAAAATTCGCAGTCCCCAACCTCCAATCACTACCAACCTC  
TTGTCTCCAATTGTCCTGGTTATCGCTGGATGTGTCTGCGGCGTTT  
ATCATATTCCCTTTCATCCTGCTGCTATGCCTCATCTTCTTGTGGTTC  
TTCTGGACTACCAAGGTATGTTGCCGTTGTCCTACTTCCAGGAA  
CATCAACTACCAGCACGGGACCATGCAAGACCTGCACGATTCCCTGCT  
CAAGGAACCTCTATGTTCCCTCTTGTGCTGTACAAAACCTCGGAC  
GGAAACTGCACTTGTATTCCCATCCATCATCCTGGGCTTCGCAAGA  
TTCCTATGGGAGTGGGCCTCAGTCCGTTCTCCTGGCTCAGTTACTA  
GTGCCATTGTTCAAGTGGTTCGCAGGGCTTCCCCACTGTTGGCTTT  
CAGTTATATGGATGATGTGGTATTGGGGGCCAAGTCTGTACAACATCT  
TGAGTCCCTTTACCTCTATTACCAATTCTTGTCTTGGGTATAC  
ATTGAA

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## FIG. 76B

Met Gly Gly Trp Ser Ser Lys Pro Arg Gln Gly Met Gly Thr Asn Leu Ser Val Pro Asn Pro Leu Gly Phe Phe Pro Asp His Gln Leu Asp Pro Ala Phe Gly Ala Asn Ser Asn Asn Pro Asp Trp Asp Phe Asn Pro Asn Lys Asp His Trp Pro Glu Ala Ile Lys Val Gly Ala Gly Asp Phe Gly Pro Gly Phe Thr Pro Pro His Gly Gly Leu Leu Gly Trp Ser Pro Gln Ala Gln Gly Ile Leu Thr Thr Val Pro Ala Ala Pro Pro Pro Val Ser Thr Asn Arg Gln Ser Gly Arg Gln Pro Thr Pro Ile Ser Pro Pro Leu Arg Asp Ser His Pro Gln Ala Met Gln Trp Asn Ser Thr Thr Phe His Gln Ala Leu Leu Asp Pro Arg Val Arg Gly Leu Tyr Phe Pro Ala Gly Gly Ser Ser Ser Gly Thr Val Asn Pro Val Pro Thr Thr Val Ser Pro Ile Ser Ser Ile Phe Ser Arg Thr Gly Asp Pro Ala Pro Asn Met Glu Ser Thr Thr Ser Gly Phe Leu Gly Pro Leu Leu Val Leu Gln Ala Gly Phe Phe Leu Leu Thr Arg Ile Leu Thr Ile Pro Gln Ser Leu Asp Ser Trp Trp Thr Ser Leu Asn Phe Leu Gly Gly Ala Pro Thr Cys Pro Gly Gln Asn Ser Gln Ser Pro Thr Ser Asn His Ser Pro Thr Ser Cys Pro Pro Ile Cys Pro Gly Tyr Arg Trp Met Cys Leu Arg Arg Phe Ile Ile Phe Leu Phe Ile Leu Leu Cys Leu Ile Phe Leu Leu Val Leu Leu Asp Tyr Gln Gly Met Leu Pro Val Cys Pro Leu Leu Pro Gly Thr Ser Thr Ser Thr Gly Pro Cys Lys Thr Cys Thr Ile Pro Ala Gln Gly Thr Ser Met Phe Pro Ser Cys Cys Thr Lys Pro Ser Asp Gly Asn Cys Thr Cys Ile Pro Ile Pro Ser Ser Trp Ala Phe Ala Arg Phe Leu Trp Glu Trp Ala Ser Val Arg Phe Ser Trp Leu Ser Leu Leu Val Pro Phe Val Gln Trp Phe Ala Gly Leu Ser Pro Thr Val Trp Leu Ser Val Ile Trp Met Met Trp Tyr Trp Gly Pro Ser Leu Tyr Asn Ile Leu Ser Pro Phe Leu Pro Leu Leu Pro Ile Phe Phe Cys Leu Trp Val Tyr Ile

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FIG. 77A

CGAACCACTCAGGGCCTGTGGACAGCTCACCTAGCTGCAATGGCTA  
CAGGCTCCGGACGTCCTGCTCCTGGCTTTGGCCTGCTCTGCCTGC  
CCTGGCTTCAAGAGGGCAGTGCCTCCACCATTCCCTATCCAGGC  
CTTTGACAACGCTATGCTCCGCGCCATCGTCTGCACCAGCTGGCCT  
TTGACACCTACCAGGAGTTGAAGAAGCCTATATCCAAAGGAACAG  
AAGTATTCAATTCCCTGCAGAACCCCCAGACCTCCCTGTTCTCAGAG  
TCTATTCCGACACCCTCCAACAGGGAGGAAACACAACAGAAATCCAA  
CCTAGAGCTGCTCCGCATCTCCCTGCTGCTCATCCAGTCGTGGCTGGA  
GCCCGTGCAGTTCCCTCAGGAGTGTCTCGCCAACAGCCTGGTGTACGG  
CGCCTCTGACAGCAACGTCTATGACCTCTAAAGGACCTAGAGGAAG  
GCATCCAAACGCTGATGGGGAGGCTGGAAGATGGCAGCCCCCGGACT  
GGGCAGATCTTCAAGCAGACCTACAGCAAGTTCGACACAAAATCACA  
CAACGATGACGCACTACTCAAGAACTACGGGCTGCTCTACTGCTTCAG  
GAAGGACATGGCAAGGTGAGACATTCCCTGCGCATCGTGCAGTGCCG  
CTCTGTGGAGGGCAGCTGTGGCTTAGCTGCCGGTGGCATCCCTG  
TGACCCCTCCCCAGTGCCTCTCCTGGGAAGTTGCCACTCCAGT  
GCCCACCAAGCCTTGCCTAATAAAATTAAAGTTGCATC

FIG. 77B

Met Ala Thr Gly Ser Arg Thr Ser Leu Leu Leu Ala Phe Gly Leu Leu Cys Leu  
Pro Trp Leu Gln Glu Gly Ser Ala Phe Pro Thr Ile Pro Leu Ser Arg Pro Phe Asp  
Asn Ala Met Leu Arg Ala His Arg Leu His Gln Leu Ala Phe Asp Thr Tyr Gln  
Glu Phe Glu Glu Ala Tyr Ile Pro Lys Glu Gln Lys Tyr Ser Phe Leu Gln Asn Pro  
Gln Thr Ser Leu Cys Phe Ser Glu Ser Ile Pro Thr Pro Ser Asn Arg Glu Glu Thr  
Gln Gln Lys Ser Asn Leu Glu Leu Leu Arg Ile Ser Leu Leu Leu Ile Gln Ser Trp  
Leu Glu Pro Val Gln Phe Leu Arg Ser Val Phe Ala Asn Ser Leu Val Tyr Gly Ala  
Ser Asp Ser Asn Val Tyr Asp Leu Leu Lys Asp Leu Glu Glu Gly Ile Gln Thr Leu  
Met Gly Arg Leu Glu Asp Gly Ser Pro Arg Thr Gly Gln Ile Phe Lys Gln Thr Tyr  
Ser Lys Phe Asp Thr Asn Ser His Asn Asp Asp Ala Leu Leu Lys Asn Tyr Gly  
Leu Leu Tyr Cys Phe Arg Lys Asp Met Asp Lys Val Glu Thr Phe Leu Arg Ile  
Val Gln CysArg Ser Val Glu Gly Ser Cys Gly Phe

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FIG. 78A

ATGTATTCCAATGTGATAGGAACGTAAACCTCTGGAAAAAGGAAGGT  
TTATCTTTCGCCTGCTGCTCATTGGCTCTGGACTGCGTGACCTGT  
CACGGGAGCCCTGTGGACATCTGCACAGCCAAGCCGCCGGACATTCC  
CATGAATCCCCTGTGCATTACCGCTCCCCGGAGAAGAAGGCAACTG  
AGGATGAGGGCTCAGAACAGAACAGATCCCCGGAGGCCACCAACC GGCG  
TGTCTGGGAACGTCCAAGGCCAATTCCCGCTTGCTACCAACTTCTA  
TCAGCACCTGGCAGATTCCAAGAACATGACAATGATAACATTTCCTGTC  
ACCCCTGAGTATCTCCACGGCTTGCTATGACCAAGCTGGTGCGCTG  
TAATGACACCCCTCCAGCAACTGATGGAGGTATTAAGTTGACACCAT  
ATCTGAGAAAACATCTGATCAGATCCACTTCTTGCCTAAACTGAA  
CTGCCGACTCTATCGAAAAGCCAACAAATCCTCCAAGTTAGTATCAGC  
CAATCGCCTTTGGAGACAAATCCCTACCTTCAATGAGACCTACCA  
GGACATCAGTGAGTTGGTATATGGAGCCAAGCTCCAGCCCTGGACT  
TCAAGGAAAATGCAGAGCAATCCAGAGCGGCCATCAACAAATGGGTG  
TCCAATAAGACCGAAGGCCGAATCACCAGTCATTCCCTCGGAAGC  
CATCAAATGAGCTCACTGTTCTGGTGTGGTAACACCATTACTCAA  
GGGCCTGTGAAAGTCAAAGTTGACATCCAGGCTGAGAACACACAAGGAAGGAAC  
TGTCTACAAGGCTGATGGAGAGTCGTGTCAGCATCTATGATGTACC  
AGGAAGGCAAGTTCCGTTATCGGCGCGTGGCTGAAGGCACCCAGGTG  
CTTGAGTTGCCCTCAAAGGTGATGACATCACCAGGTCTCATCTTG  
CCCAAGCCTGAGAACAGCCTGGCCAAGGTGGAGAACAGGAACTCACCCC  
AGAGGTGCTGCAGGAGTGGCTGGATGAATTGGAGGAGATGATGCTGG  
TGGTCCACATGCCCGCTCCGCATTGAGGACGGCTCAGTTGAAGG  
AGCAGCTGCAAGACATGGCCTTGTGATCTGTCAGCCCTGAAAAG  
TCCAAACTCCCAGGTATTGTTGCAAGGCCGAGATGACCTCTATGTC  
TCAGATGCATTCCATAAGGCATTCTTGAGGTAAATGAAGAACAGCAG  
TGAAGCAGCTGCAAGTACCGCTGTTGATTGCTGGCCGTTCGCTAAA  
CCCCAACAGGGTGACTTCAAGGCCAACAGGCCCTTCCTGGTTTAT  
AAGAGAACAGTTCCCTGAAACACTATTATCTTCATGGCAGAGTAGCCA  
ACCCTGTGTTAAGTAA

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## FIG. 78B

Met Tyr Ser Asn Val Ile Gly Thr Val Thr Ser Gly Lys Arg Lys Val Tyr Leu Leu Ser Leu Leu Leu Ile Gly Phe Trp Asp Cys Val Thr Cys His Gly Ser Pro Val Asp Ile Cys Thr Ala Lys Pro Arg Asp Ile Pro Met Asn Pro Met Cys Ile Tyr Arg Ser Pro Glu Lys Lys Ala Thr Glu Asp Glu Gly Ser Glu Gln Lys Ile Pro Glu Ala Thr Asn Arg Arg Val Trp Glu Leu Ser Lys Ala Asn Ser Arg Phe Ala Thr Thr Phe Tyr Gln His Leu Ala Asp Ser Lys Asn Asp Asn Asn Ile Phe Leu Ser Pro Leu Ser Ile Ser Thr Ala Phe Ala Met Thr Lys Leu Gly Ala Cys Asn Asp Thr Leu Gln Gln Leu Met Glu Val Phe Lys Phe Asp Thr Ile Ser Glu Lys Thr Ser Asp Gln Ile His Phe Phe Phe Ala Lys Leu Asn Cys Arg Leu Tyr Arg Lys Ala Asn Lys Ser Ser Lys Leu Val Ser Ala Asn Arg Leu Phe Gly Asp Lys Ser Leu Thr Phe Asn Glu Thr Tyr Gln Asp Ile Ser Glu Leu Val Tyr Gly Ala Lys Leu Gln Pro Leu Asp Phe Lys Glu Asn Ala Glu Gln Ser Arg Ala Ala Ile Asn Lys Trp Val Ser Asn Lys Thr Glu Gly Arg Ile Thr Asp Val Ile Pro Ser Glu Ala Ile Asn Glu Leu Thr Val Leu Val Leu Val Asn Thr Ile Tyr Phe Lys Gly Leu Trp Lys Ser Lys Phe Ser Pro Glu Asn Thr Arg Lys Glu Leu Phe Tyr Lys Ala Asp Gly Glu Ser Cys Ser Ala Ser Met Met Tyr Gln Glu Gly Lys Phe Arg Tyr Arg Arg Val Ala Glu Gly Thr Gln Val Leu Glu Leu Pro Phe Lys Gly Asp Asp Ile Thr Met Val Leu Ile Leu Pro Lys Pro Glu Lys Ser Leu Ala Lys Val Glu Lys Glu Leu Thr Pro Glu Val Leu Gln Glu Trp Leu Asp Glu Leu Glu Glu Met Met Leu Val Val His Met Pro Arg Phe Arg Ile Glu Asp Gly Phe Ser Leu Lys Glu Gln Leu Gln Asp Met Gly Leu Val Asp Leu Phe Ser Pro Glu Lys Ser Lys Leu Pro Gly Ile Val Ala Glu Gly Arg Asp Asp Leu Tyr Val Ser Asp Ala Phe His Lys Ala Phe Leu Glu Val Asn Glu Glu Gly Ser Glu Ala Ala Ala Ser Thr Ala Val Val Ile Ala Gly Arg Ser Leu Asn Pro Asn Arg Val Thr Phe Lys Ala Asn Arg Pro Phe Leu Val Phe Ile Arg Glu Val Pro Leu Asn Thr Ile Ile Phe Met Gly Arg Val Ala Asn Pro Cys Val Lys

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FIG. 79A

ATGGATTACTACAGAAAATGCAGCTATCTTCTGGTCACATTGTCG  
GTGTTCTGCATGTTCTCCATTCCGCTCCTGATGTGCAGGATTGCCAG  
AATGCACGCTACAGGAAAACCCATTCTCTCCCAGCCGGGTGCCCA  
ATACTTCAGTGCATGGGCTGCTGCTCTAGAGCATATCCCACCTCCA  
CTAAGGTCCAAGAACGATGTTGGTCCAAAAGAACGTCACCTCAGA  
GTCCACTTGCTGTGTAGCTAAATCATATAACAGGGTCACAGTAATGGG  
GGGTTTCAAAGTGGAGAACCACACGGCGTGCCACTGCAGTACTTGT  
ATTATCACAAATCTTAA

FIG. 79B

Met Asp Tyr Tyr Arg Lys Tyr Ala Ala Ile Phe Leu Val Thr Leu Ser Val Phe Leu  
His Val Leu His Ser Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu  
Asn Pro Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys Phe  
Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu Val Gln Lys Asn  
Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser Tyr Asn Arg Val Thr Val Met  
Gly Gly Phe Lys Val Glu Asn His Thr Ala Cys His Cys Ser Thr Cys Tyr Tyr His  
Lys Ser

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FIG. 79C

ATGGAGATGTTCCAGGGCTGCTGCTGTTGCTGCTGCTGAGCATGGGC  
GGGACATGGCATCCAAGGAGCCGCTTCGGCCACGGTGCCGCCCAT  
CAATGCCACCCCTGGCTGTGGAGAAGGAGGGCTGCCCGTGTGCATCA  
CCGTCAACACCACCATCTGTGCCGGCTACTGCCAACCATGACCCGCG  
TGCTGCAGGGGTCTGCCGGCCCTGCCTCAGGTGGTGTGCAACTACC  
GCGATGTGCGCTTCGAGTCATCCGGCTCCCTGGCTGCCCGCGCG  
TGAACCCCCTGGTCTCCTACGCCGTGGCTCTCAGCTGTCAATGTGCAC  
TCTGCCGCCAGCACCACTGACTGCCGGTCCAAAGGACCACCCC  
TTGACCTGTGATGACCCCCGCTTCCAGGACTCCTCTCAAAGGCC  
CCTCCCCCAGCCTCCAAGCCCATCCCGACTCCGGGCCCTCGGAC  
ACCCCGATCCTCC CACAATAA

FIG. 79D

Met Glu Met Phe Gln Gly Leu Leu Leu Leu Leu Ser Met Gly Gly Thr  
Trp Ala Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr Leu Ala  
Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr Thr Ile Cys Ala Gly  
Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly Val Leu Pro Ala Leu Pro Gln Val  
Val Cys Asn Tyr Arg Asp Val Arg Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg  
Gly Val Asn Pro Val Val Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys  
Arg Arg Ser Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp  
Asp Pro Arg Phe Gln Asp Ser Ser Ser Lys Ala Pro Pro Pro Ser Leu Pro Ser  
Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr Pro Ile Leu Pro Gln

FIG. 80A

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ATGCGTCCCCCTGCGCCCGCGCCGCTGCTGGCGCTCCTGGCCTCG  
CTCCTGGCCCGGCCCGGCTGGCCCCGGCGAGGCCCCGCACCTGGT  
GCAGGTGGACGCGGCCGCGCGCTGTGGCCCCCTGCGGCCTTCTGGA  
GGAGCACAGGCTCTGCCACACAGCCAGGCTGACCAG  
TACGTCCCTCAGCTGGGACCAGCAGCTAACCTCGCCTATGTGGCGCC  
GTCCCTCACCGCGGCATCAAGCAGGTCCGGACCCACTGGCTGCTGGA  
GCTTGTCAACCACCAAGGGGTCCACTGGACGGGCCTGAGCTACAAC  
TCACCCACCTGGACGGGTACTTGGACCTTCTCAGGGAGAACAGCTCC  
TCCCAGGGTTGAGCTGATGGGAGCGCCTCGGGCCACTTCAGTCACT  
TTGAGGACAAGCAGCAGGTGTTGAGTGGAAAGGACTTGGTCTCCAGC  
CTGGCCAGGAGATACATCGGTAGGTACGGACTGGCGATGTTCCAA  
GTGGAACCTCGAGACGTGGAATGAGCCAGACCAACGACTTTGACA  
ACGTCTCCATGACCATGCAAGGCTCCTGAACACTACTACGATGCCTGCT  
CGGAGGGTCTGCGGCCAGCCCCGCCCTGCGGCTGGGAGGGCC  
GGCGACTCCTTCCACACCCACCGCGATCCCCGCTGAGCTGGGCC  
CTGCGCCACTGCCACGACGGTACCAAACCTTCTCACTGGGAGGGCG  
CGTGGGCTGGACTACATCTCCCTCACAGGAAGGGTGCAGCAGCT  
CCATCTCCATCCTGGAGCAGGAGAAGGTGTCGCGCAGCAGATCCGG  
CAGCTCTCCCCAAGTCGCGGACACCCCATTTACAACGACGAGGCG  
GACCCGCTGGTGGCTGGTCCCTGCCACAGCCGTGGAGGGCGGACGT  
GACCTACGCGGCCATGGTGGTGAAGGTATCGCGCAGCATCAGAAC  
TGCTACTGGCCAACACCACCTCCGCCCTCCCCTACGCGCTCCTGAGCA  
ACGACAATGCCTCCTGAGCTACCAACCCGCACCCCTCGCGCAGCGCA  
CGCTACCGCGCGCTTCCAGGTCAACAACACCCGCCCGCGCACGTG  
CAGCTGTTGCGCAAGCCGGTCTCACGGCCATGGGCTGCTGGCGCT  
GCTGGATGAGGAGCAGCTCTGGGCCGAAGTGTGCGCAGGCCGGGACCG  
TCCTGGACAGCAACCACACGGTGGCGTCTGGCCAGCGCCACCGC  
CCCCAGGGCCCGGCCACGCCCTGGCGCGCGGTGCTGATCTACGC  
GAGCGACGACACCCCGCCACCCACCGCAGCGTCGCGGTGACCC  
TGCAGCTGCCGGGGTGCCCGCCCGGCCCTGGTCTACGTACG  
CGCTACCTGGACAAACGGGCTCTGCAAGCCCGACGGCGAGTGGCGCG  
CCTGGGCCGGCCGTCTCCCCACGGCAGAGCAGTTCCGGCGCATGC  
GCGCGCTGAGGACCCGGTGGCCCGGCCCGCCCTACCGCC  
GGCGGCCGCTGACCTGCGCCCCCGCGCTGCGGCTGCCGCTGCTTITG  
CTGGTGCACGTGTGCGCCCGAGAAGCCGCCGGCAGGTAC  
GCGGCTCCCGCCCTGCCCTGACCCAAGGGCAGCTGGTCTGGTCTG  
GTCGGATGAACACGTGGCTCCAAGTGCCTGTGGACATA  
AGTCTCTCAGGACGGTAAGGCGTACACCCCGGTACGAGGAAGCCA  
TCGACCTCAACCTCTTGTGTTCAAGCCCAGACACAGGTGCTGCTCT  
GGCTCCTACCGAGTTGAGCCCTGGACTACTGGGCCGACCAGGCC  
CTTCTCGGACCCCTGTGCCGTACCTGGAGGTCCCTGTGCCAAGAGGGCC  
CCCATCCCCGGCAATCCAT GA

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## FIG. 80B

Met Arg Pro Leu Arg Pro Arg Ala Ala Leu Leu Ala Ser Leu Leu  
Ala Ala Pro Pro Val Ala Pro Ala Glu Ala Pro His Leu Val Gln Val Asp Ala Ala  
Arg Ala Leu Trp Pro Leu Arg Arg Phe Trp Arg Ser Thr Gly Phe Cys Pro Pro Leu  
Pro His Ser Gln Ala Asp Gln Tyr Val Leu Ser Trp Asp Gln Gln Leu Asn Leu Ala  
Tyr Val Gly Ala Val Pro His Arg Gly Ile Lys Gln Val Arg Thr His Trp Leu Leu  
Glu Leu Val Thr Thr Arg Gly Ser Thr Gly Arg Gly Leu Ser Tyr Asn Phe Thr His  
Leu Asp Gly Tyr Leu Asp Leu Leu Arg Glu Asn Gln Leu Leu Pro Gly Phe Glu  
Leu Met Gly Ser Ala Ser Gly His Phe Thr Asp Phe Glu Asp Lys Gln Gln Val  
Phe Glu Trp Lys Asp Leu Val Ser Ser Leu Ala Arg Arg Tyr Ile Gly Arg Tyr Gly  
Leu Ala His Val Ser Lys Trp Asn Phe Glu Thr Trp Asn Glu Pro Asp His His Asp  
Phe Asp Asn Val Ser Met Thr Met Gln Gly Phe Leu Asn Tyr Tyr Asp Ala Cys  
Ser Glu Gly Leu Arg Ala Ala Ser Pro Ala Leu Arg Leu Gly Gly Pro Gly Asp Ser  
Phe His Thr Pro Pro Arg Ser Pro Leu Ser Trp Gly Leu Leu Arg His Cys His Asp  
Gly Thr Asn Phe Phe Thr Gly Glu Ala Gly Val Arg Leu Asp Tyr Ile Ser Leu His  
Arg Lys Gly Ala Arg Ser Ser Ile Ser Ile Leu Glu Gln Glu Lys Val Val Ala Gln  
Gln Ile Arg Gln Leu Phe Pro Lys Phe Ala Asp Thr Pro Ile Tyr Asn Asp Glu Ala  
Asp Pro Leu Val Gly Trp Ser Leu Pro Gln Pro Trp Arg Ala Asp Val Thr Tyr Ala  
Ala Met Val Val Lys Val Ile Ala Gln His Gln Asn Leu Leu Ala Asn Thr Thr  
Ser Ala Phe Pro Tyr Ala Leu Leu Ser Asn Asp Asn Ala Phe Leu Ser Tyr His Pro  
His Pro Phe Ala Gln Arg Thr Leu Thr Ala Arg Phe Gln Val Asn Asn Thr Arg  
Pro Pro His Val Gln Leu Leu Arg Lys Pro Val Leu Thr Ala Met Gly Leu Leu Ala  
Leu Leu Asp Glu Glu Gln Leu Trp Ala Glu Val Ser Gln Ala Gly Thr Val Leu  
Asp Ser Asn His Thr Val Gly Val Leu Ala Ser Ala His Arg Pro Gln Gly Pro Ala  
Asp Ala Trp Arg Ala Ala Val Leu Ile Tyr Ala Ser Asp Asp Thr Arg Ala His Pro  
Asn Arg Ser Val Ala Val Thr Leu Arg Leu Arg Gly Val Pro Pro Gly Pro Gly Leu  
Val Tyr Val Thr Arg Tyr Leu Asp Asn Gly Leu Cys Ser Pro Asp Gly Glu Trp  
Arg Arg Leu Gly Arg Pro Val Phe Pro Thr Ala Glu Gln Phe Arg Arg Met Arg  
Ala Ala Glu Asp Pro Val Ala Ala Ala Pro Arg Pro Leu Pro Ala Gly Gly Arg Leu  
Thr Leu Arg Pro Ala Leu Arg Leu Pro Ser Leu Leu Val His Val Cys Ala  
Arg Pro Glu Lys Pro Pro Gly Gln Val Thr Arg Leu Arg Ala Leu Pro Leu Thr Gln  
Gly Gln Leu Val Leu Val Trp Ser Asp Glu His Val Gly Ser Lys Cys Leu Trp Thr  
Tyr Glu Ile Gln Phe Ser Gln Asp Gly Lys Ala Tyr Thr Pro Val Ser Arg Lys Pro  
Ser Thr Phe Asn Leu Phe Val Phe Ser Pro Asp Thr Gly Ala Val Ser Gly Ser Tyr  
Arg Val Arg Ala Leu Asp Tyr Trp Ala Arg Pro Gly Pro Phe Ser Asp Pro Val Pro  
Tyr Leu Glu Val Pro Val Pro Arg Gly Pro Pro Ser Pro Gly Asn Pro

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FIG. 81A

ATGCAGCTGAGGAACCCAGAACTACATCTGGGCTGCCGCGCTTGCCTGC  
TCGCTTCCTGGCCCTCGTTCCCTGGGACATCCCTGGGGCTAGAGCACT  
GGACAATGGATTGGCAAGGACGCCTACCATGGGCTGGCTGCACTGGG  
AGCGCTTCATGTGCAACCTGACTGCCAGGAAGAGCCAGATTCCCTGC  
ATCAGTGAGAAGCTCTTCATGGAGATGGCAGAGCTCATGGTCTCAGA  
AGGCTGGAAGGATGCAGGTTATGAGTACCTCTGCATTGATGACTGTTG  
GATGGCTCCCCAAAGAGATTCAAAGGCAGACTCAGGCAGACCCCTC  
AGCGCTTCCTCATGGGATTGCCAGCTAGCTAATTATGTTCACAGCA  
AAGGACTGAAGCTAGGGATTATGCAGATGTTGGAAATAAAACCTGC  
GCAGGCTTCCCTGGGAGTTGGATACTACGACATTGATGCCAGACC  
TTTGCTGACTGGGAGTAGATCTGCTAAAATTGATGGTTGTTACTGT  
GACAGTTGAAAATTGGCAGATGGTTATAAGCACATGTCCTGGCC  
CTGAATAGGACTGGCAGAACGATTGTACTCCTGTGAGTGGCCTCTT  
TATATGTGGCCCTTCAAAAGCCAATTATACAGAAATCCGACAGTAC  
TGCAATCACTGGCAGAATTGCTGACATTGATGATTCCCTGGAAAAGT  
ATAAAGAGTATCTTGGACTGGACATCTTTAACCAAGGAGAGAATTGTT  
GATGTTGCTGGACCAGGGGTTGGAATGACCCAGATATGTTAGTGAT  
TGGCAACTTGGCCTCAGCTGGAAATCAGCAAGTAACTCAGATGGCCCT  
CTGGGCTATCATGGCTGCTCCTTATTGATGTCTAATGACCTCCGACA  
CATCAGCCCTCAAGCCAAAGCTCTCCTCAGGATAAGGACGTAATTGC  
CATCAATCAGGACCCCTGGCAAGCAAGGGTACCAAGCTAGACAGG  
GAGACAACTTGAAGTGTGGAACGACCTCTCAGGCTTAGCCTGG  
GCTGTAGCTATGATAAACCGGCAGGAGATTGGTGGACCTCGCTTTAT  
ACCATCGCAGTTGCTTCCCTGGTAAAGGAGTGGCCTGTAATCCTGCC  
TGCTTCATCACACAGCTCCCTGTGAAAAGGAAGCTAGGGTTCTAT  
GAATGGACTCAAGGTTAAGAAGTCACATAAAATCCCACAGGCACTGT  
TTGCTTCAGCTAGAAAATACAATGCAGATGTCATTAAAAGACTTACT  
TTAA

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## FIG. 81B

Met Gln Leu Arg Asn Pro Glu Leu His Leu Gly Cys Ala Leu Ala Leu Arg Phe  
Leu Ala Leu Val Ser Trp Asp Ile Pro Gly Ala Arg Ala Leu Asp Asn Gly Leu Ala  
Arg Thr Pro Thr Met Gly Trp Leu His Trp Glu Arg Phe Met Cys Asn Leu Asp  
Cys Gln Glu Glu Pro Asp Ser Cys Ile Ser Glu Lys Leu Phe Met Glu Met Ala Glu  
Leu Met Val Ser Glu Gly Trp Lys Asp Ala Gly Tyr Glu Tyr Leu Cys Ile Asp Asp  
Cys Trp Met Ala Pro Gln Arg Asp Ser Glu Gly Arg Leu Gln Ala Asp Pro Gln  
Arg Phe Pro His Gly Ile Arg Gln Leu Ala Asn Tyr Val His Ser Lys Gly Leu Lys  
Leu Gly Ile Tyr Ala Asp Val Gly Asn Lys Thr Cys Ala Gly Phe Pro Gly Ser Phe  
Gly Tyr Tyr Asp Ile Asp Ala Gln Thr Phe Ala Asp Trp Gly Val Asp Leu Leu Lys  
Phe Asp Gly Cys Tyr Cys Asp Ser Leu Glu Asn Leu Ala Asp Gly Tyr Lys His  
Met Ser Leu Ala Leu Asn Arg Thr Gly Arg Ser Ile Val Tyr Ser Cys Glu Trp Pro  
Leu Tyr Met Trp Pro Phe Gln Lys Pro Asn Tyr Thr Glu Ile Arg Gln Tyr Cys Asn  
His Trp Arg Asn Phe Ala Asp Ile Asp Asp Ser Trp Lys Ser Ile Lys Ser Ile Leu  
Asp Trp Thr Ser Phe Asn Gln Glu Arg Ile Val Asp Val Ala Gly Pro Gly Trp  
Asn Asp Pro Asp Met Leu Val Ile Gly Asn Phe Gly Leu Ser Trp Asn Gln Gln  
Val Thr Gln Met Ala Leu Trp Ala Ile Met Ala Ala Pro Leu Phe Met Ser Asn Asp  
Leu Arg His Ile Ser Pro Gln Ala Lys Ala Leu Gln Asp Lys Asp Val Ile Ala  
Ile Asn Gln Asp Pro Leu Gly Lys Gln Gly Tyr Gln Leu Arg Gln Gly Asp Asn  
Phe Glu Val Trp Glu Arg Pro Leu Ser Gly Leu Ala Trp Ala Val Ala Met Ile Asn  
Arg Gln Glu Ile Gly Gly Pro Arg Ser Tyr Thr Ile Ala Val Ala Ser Leu Gly Lys  
Gly Val Ala Cys Asn Pro Ala Cys Phe Ile Thr Gln Leu Leu Pro Val Lys Arg Lys  
Leu Gly Phe Tyr Glu Trp Thr Ser Arg Leu Arg Ser His Ile Asn Pro Thr Gly Thr  
Val Leu Leu Gln Leu Glu Asn Thr Met Gln Met Ser Leu Lys Asp Leu Leu

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FIG. 82A

ATGGCGCCCGTCGCCGTCTGGCCGCGCTGGCCGTGGACTGGAGCT  
CTGGGCTGCAGCGCAGCCTGCCGCCAGGTGGCATTACACCCCTA  
CGCCCCGGAGCCCAGGAGCACATGCCGGCTCAGAGAAATACTATGACC  
AGACAGCTCAGATGTGCTGCAGCAAATGCTCGCCGGCCAACATGCA  
AAAGTCTTCTGTACCAAGACCTCGGACACCGTGTGACTCCTGTGAG  
GACAGCACATACACCCAGCTCTGGAACACTGGGTTCCGAGTGCTTGAG  
CTGTGGCTCCCGCTGTAGCTCTGACCAAGGTGGAAACTCAAGCCTGCAC  
TCGGGAACAGAACCGCATCTGCACCTGCAGGCCGGCTGGTACTGCG  
CGCTGAGCAAGCAGGAGGGTGCCGGCTGTGCGCGCCGCTGCGCAAG  
TGCCGCCCGGGCTTCGGCGTGGCCAGACCAGGAACGTGAAACATCAGA  
CGTGGTGTGCAAGCCTGTGCCCCGGGACGTTCTCAAACACGACTTC  
ATCCACGGATATTGCAGGCCCCACCAGATCTGTAACGTGGTGGCCAT  
CCCTGGGAATGCAAGCATGGATGCAGTCTGCACGTCCACGTCCCCA  
CCCGGAGTATGGCCCCAGGGGAGTACACTTACCCCAGCCAGTGTCC  
ACACGATCCAACACACGCAGCCAACCTCCAGAACCCAGCACTGCTCC  
AAGCACCTCCTCTGCTCCAATGGGCCCCAGCCCCCAGCTGAAGG  
GAGCACTGGCGACTTCGCTTCCAGTTGGACTGATTGTGGTGTGAC  
AGCCTGGGTCTACTAATAATAGGAGTGGTAACGTGTATCATGAC  
CCAGGTAAAAAGAAGCCCTGTGCCTGCAGAGAGAACGCAAGGTGC  
CTCACTGCCTGCCGATAAGGCCGGGTACACAGGGCCCCGAGCAG  
CAGCACCTGCTGATCACAGCGCCGAGCTCCAGCAGCAGCTCCCTGGA  
GAGCTCGGCCAGTGCCTGGACAGAACGGCGCCACTCGGAACCAGC  
CACAGGCACCAGGCGTGGAGGCCAGTGGGGCCGGGAGGCCGGC  
CAGCACCGGGAGCTCAGATTCTCCCTGGTGGCCATGGGACCCAGG  
TCAATGTCACCTGCATCGTAACGTCTGTAGCAGCTCTGACCACAGCT  
CACAGTGCTCCTCCAAGCCAGCTCCACAATGGGAGACACAGATTCC  
AGCCCCCTGGAGTCCCCGAAGGACGAGCAGGTCCCCCTCTCCAAGGA  
GGAATGTGCCTTCGGTACAGCTGGAGACGCCAGAGACCCCTGCTGG  
GGAGCACCGAAGAGAACGCCCTGCCCTGGAGTGCCTGATGCTGGG  
ATGAAGCCCAGTTAACCAAGGCCGGTGTGGCTGTGCTAGCCAAGG  
TGGGCTGAGCCCTGGCAGGATGACCCCTGCGAAGGGCCCTGGTCCCT  
CCAGGC

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## FIG. 82B

Met Ala Pro Val Ala Val Trp Ala Ala Leu Ala Val Gly Leu Glu Leu Trp Ala Ala  
Ala His Ala Leu Pro Ala Gln Val Ala Phe Thr Pro Tyr Ala Pro Glu Pro Gly Ser  
Thr Cys Arg Leu Arg Glu Tyr Tyr Asp Gln Thr Ala Gln Met Cys Cys Ser Lys  
Cys Ser Pro Gly Gln His Ala Lys Val Phe Cys Thr Lys Thr Ser Asp Thr Val Cys  
Asp Ser Cys Glu Asp Ser Thr Tyr Thr Gln Leu Trp Asn Trp Val Pro Glu Cys  
Leu Ser Cys Gly Ser Arg Cys Ser Ser Asp Gln Val Glu Thr Gln Ala Cys Thr Arg  
Glu Gln Asn Arg Ile Cys Thr Cys Arg Pro Gly Trp Tyr Cys Ala Leu Ser Lys Gln  
Glu Gly Cys Arg Leu Cys Ala Pro Leu Arg Lys Cys Arg Pro Gly Phe Gly Val  
Ala Arg Pro Gly Thr Glu Thr Ser Asp Val Val Cys Lys Pro Cys Ala Pro Gly Thr  
Phe Ser Asn Thr Thr Ser Ser Thr Asp Ile Cys Arg Pro His Gln Ile Cys Asn Val  
Val Ala Ile Pro Gly Asn Ala Ser Met Asp Ala Val Cys Thr Ser Thr Ser Pro Thr  
Arg Ser Met Ala Pro Gly Ala Val His Leu Pro Gln Pro Val Ser Thr Arg Ser Gln  
His Thr Gln Pro Thr Pro Glu Pro Ser Thr Ala Pro Ser Thr Phe Leu Leu Pro  
Met Gly Pro Ser Pro Pro Ala Glu Gly Ser Thr Gly Asp Phe Ala Leu Pro Val Gly  
Leu Ile Val Gly Val Thr Ala Leu Gly Leu Leu Ile Ile Gly Val Val Asn Cys Val  
Ile Met Thr Gln Val Lys Lys Pro Leu Cys Leu Gln Arg Glu Ala Lys Val Pro  
His Leu Pro Ala Asp Lys Ala Arg Gly Thr Gln Gly Pro Glu Gln Gln His Leu Leu  
Ile Thr Ala Pro Ser Ser Ser Ser Ser Leu Glu Ser Ser Ala Ser Ala Leu Asp Arg  
Arg Ala Pro Thr Arg Asn Gln Pro Gln Ala Pro Gly Val Glu Ala Ser Gly Ala Gly  
Glu Ala Arg Ala Ser Thr Gly Ser Ser Asp Ser Ser Pro Gly Gly His Gly Thr Gln  
Val Asn Val Thr Cys Ile Val Asn Val Cys Ser Ser Ser Asp His Ser Ser Gln Cys  
Ser Ser Gln Ala Ser Ser Thr Met Gly Asp Thr Asp Ser Ser Pro Ser Glu Ser Pro  
Lys Asp Glu Gln Val Pro Phe Ser Lys Glu Glu Cys Ala Phe Arg Ser Gln Leu Glu  
Thr Pro Glu Thr Leu Leu Gly Ser Thr Glu Glu Lys Pro Leu Pro Leu Gly Val Pro  
Asp Ala Gly Met Lys Pro Ser

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## FIG. 83A

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly Asp Arg Val  
Thr Ile Thr Cys Arg Ala Ser Gln Asp Val Asn Thr Ala Val Ala Trp Tyr Gln Gln  
Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr Ser Ala Ser Phe Leu Tyr Ser Gly  
Val Pro Ser Arg Phe Ser Gly Ser Arg Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser  
Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln His Tyr Thr Thr Pro  
Pro Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys

## FIG. 83B

Glu Val Gln Leu Val Glu Ser Gly Gly Leu Val Gln Pro Gly Gly Ser Leu Arg  
Leu Ser Cys Ala Ala Ser Gly Phe Asn Ile Lys Asp Thr Tyr Ile His Trp Val Arg  
Gln Ala Pro Gly Lys Gly Leu Glu Trp Val Ala Arg Ile Tyr Pro Thr Asn Gly Tyr  
Thr Arg Tyr Ala Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Ala Asp Thr Ser Lys  
Asn Thr Ala Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr  
Tyr Cys Ser Arg Trp Gly Gly Asp Gly Phe Tyr Ala Met Asp Tyr Trp Gly Gln  
Gly Thr Leu Val Thr Val Ser Ser

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## FIG. 84A

Gln Val Thr Leu Arg Glu Ser Gly Pro Ala Leu Val Lys Pro Thr Gln Thr Leu Thr  
Leu Thr Cys Thr Phe Ser Gly Phe Ser Leu Ser Thr Ser Gly Met Ser Val Gly Trp  
Ile Arg Gln Pro Ser Gly Lys Ala Leu Glu Trp Leu Ala Asp Ile Trp Trp Asp Asp  
Lys Lys Asp Tyr Asn Pro Ser Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser  
Lys Asn Gln Val Val Leu Lys Val Thr Asn Met Asp Pro Ala Asp Thr Ala Thr  
Tyr Tyr Cys Ala Arg Ser Met Ile Thr Asn Trp Tyr Phe Asp Val Trp Gly Ala Gly  
Thr Thr Val Thr Val Ser Ser

## FIG. 84B

Asp Ile Gln Met Thr Gln Ser Pro Ser Thr Leu Ser Ala Ser Val Gly Asp Arg Val  
Thr Ile Thr Cys Lys Cys Gln Leu Ser Val Gly Tyr Met His Trp Tyr Gln Gln Lys  
Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr Asp Thr Ser Lys Leu Ala Ser Gly Val  
Pro Ser Arg Phe Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser  
Leu Gln Pro Asp Asp Phe Ala Thr Tyr Tyr Cys Phe Gln Gly Ser Gly Tyr Pro Phe  
Thr Phe Gly Gly Thr Lys Leu Glu Ile Lys